

CHAMBERS HIGH POINT
TRAFFIC IMPACT ANALYSIS
(Revised October 8, 2015)

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TIS Standard Checklist

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| INTRODUCTION | <input type="checkbox"/> | <input type="checkbox"/> | |
| Vicinity Map | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Proposed Project Site Plan | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Proposed Development Phasing | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <u>NO PHASING DEFINED</u> |
| Existing & Proposed Land Uses Surrounding Site | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| EXISTING CONDITIONS | <input type="checkbox"/> | <input type="checkbox"/> | |
| Roadway Counts < One Year Old | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Intersection Counts < Six Months Old | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>CONDUCTED APRIL 2015</u> |
| Existing LOS Summary (Table) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>SEE APPENDIX B</u> |
| PROPOSED CONDITIONS | <input type="checkbox"/> | <input type="checkbox"/> | |
| Trip Generation Summary (Table) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Internal Trip Reduction Justification (< 10%) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Pass-by Trip Reduction Justification (< 15%) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <u>NO PASS-BY APPLIED</u> |
| Trip Distribution Assumptions | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Site Trip Distribution (Figure) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Projected Site Traffic Volumes (Figure) - Each Phase | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| REPORT SECTION | COMPLETED | N/A | COMMENTS |
|---|-------------------------------------|-------------------------------------|----------------------|
| FUTURE CONDITIONS | | | |
| Background Transportation Improvements | <input type="checkbox"/> | <input type="checkbox"/> | |
| Background Growth Method & Assumptions | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Background Traffic Volumes (Figure) - Each Phase | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Total Traffic Volumes (Figure) - Each Phase | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| SITE CIRCULATION & DESIGN EVALUATION | | | |
| Level of Service Analysis - Each Phase (Figures/Table) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Queuing Analysis - Vehicle Storage Lengths | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Traffic Signal Warrant Analysis | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Traffic Signal Progression | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Safety Analysis | <input type="checkbox"/> | <input checked="" type="checkbox"/> | NO CRASH DATA |
| PROPOSED MITIGATION MEASURES | | | |
| Level of Service for Each Intersection Movement (Table) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | SEE APPENDIX D AND E |
| CONCLUSIONS/RECOMMENDATIONS | | | |
| Improvements/Lane Configurations (Figure) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | FIGURE 11 |
| Recommended Construction Phasing | <input checked="" type="checkbox"/> | <input type="checkbox"/> | SEE FIGURE 11 |
| APPENDIX | | | |
| Traffic Count Data | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Traffic Analysis Software Output Reports (All Periods) | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| Time-space Diagrams | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

"I have reviewed the attached report with this checklist and all required items have been included except as noted above."



Signature of Professional Engineer

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I. INTRODUCTION/PROJECT DESCRIPTION

Chambers High Point is a proposed mixed-use development to be located within the Town of Parker, Colorado. The approximate 32-acre site is located along the south side of E-470 just west of Chambers Road. **Figure 1** illustrates the location of the site and the adjacent primary roadway network.

The current site plan concept for the Chambers High Point development is depicted on **Figure 2**. Current planning efforts have identified a mix of residential and commercial land uses. Access would be via Belford Avenue, a proposed arterial roadway, which would connect to Chambers Road on the east via a full-movement intersection. Belford Avenue would be constructed within the site as a part of this development, and would eventually be continued west to connect with Peoria Street as a part of other future developments.

The traffic impacts of this site were previously addressed in the *Chambers High Point Traffic Impact Analysis*, Felsburg Holt & Ullevig, January 2012. The purpose of this current report is to provide an updated evaluation of the potential traffic impacts specific to the current development program at Chambers High Point and to identify any roadway or traffic control improvements required as a result. The analyses consider two future scenarios:

- Short Range Future. This scenario examines the traffic impacts on completion of the project in the near-term future (year 2016).
- Long Range Future. This scenario examines the traffic impacts within the context of a year 2035 horizon.

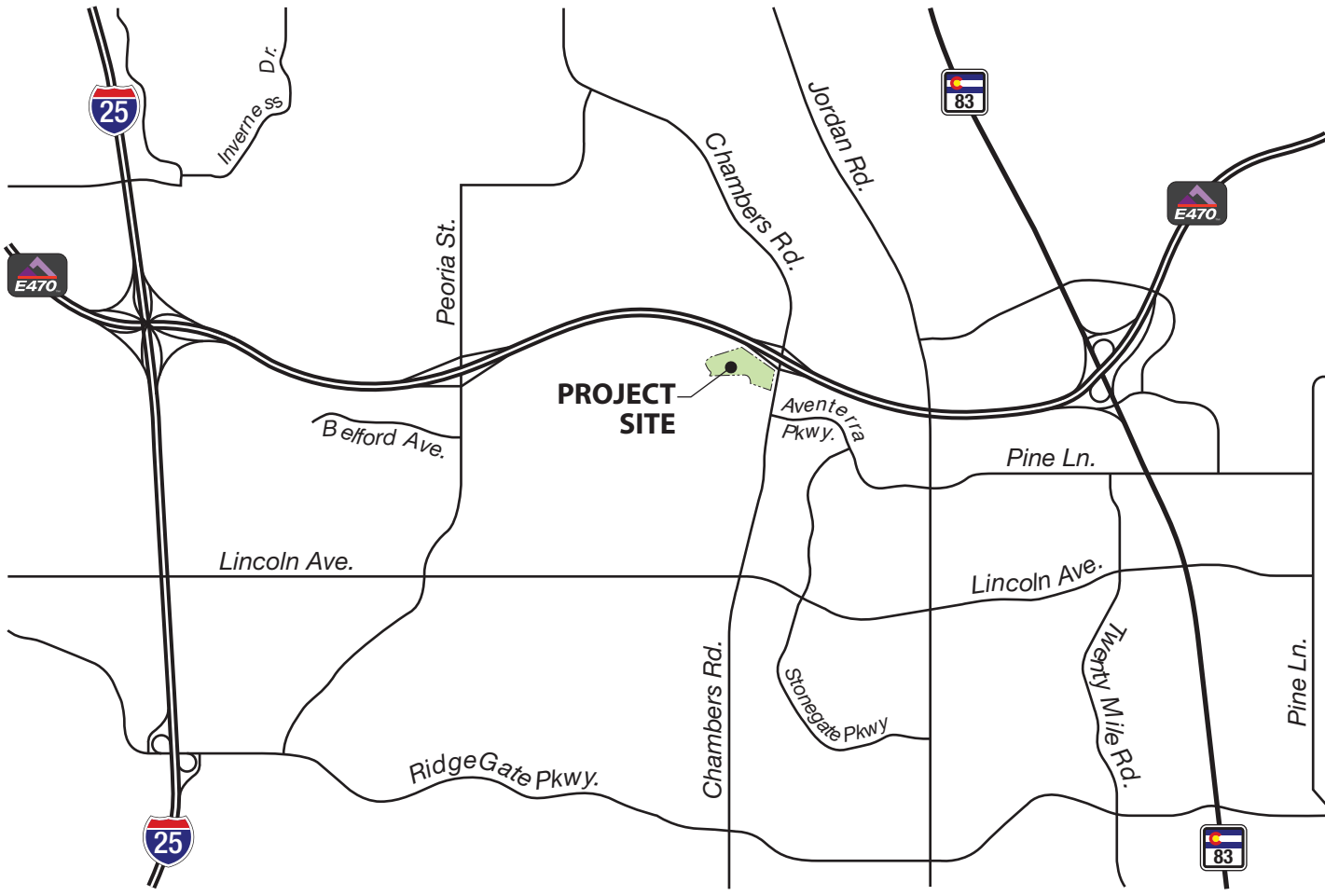


Figure 1
Vicinity Map

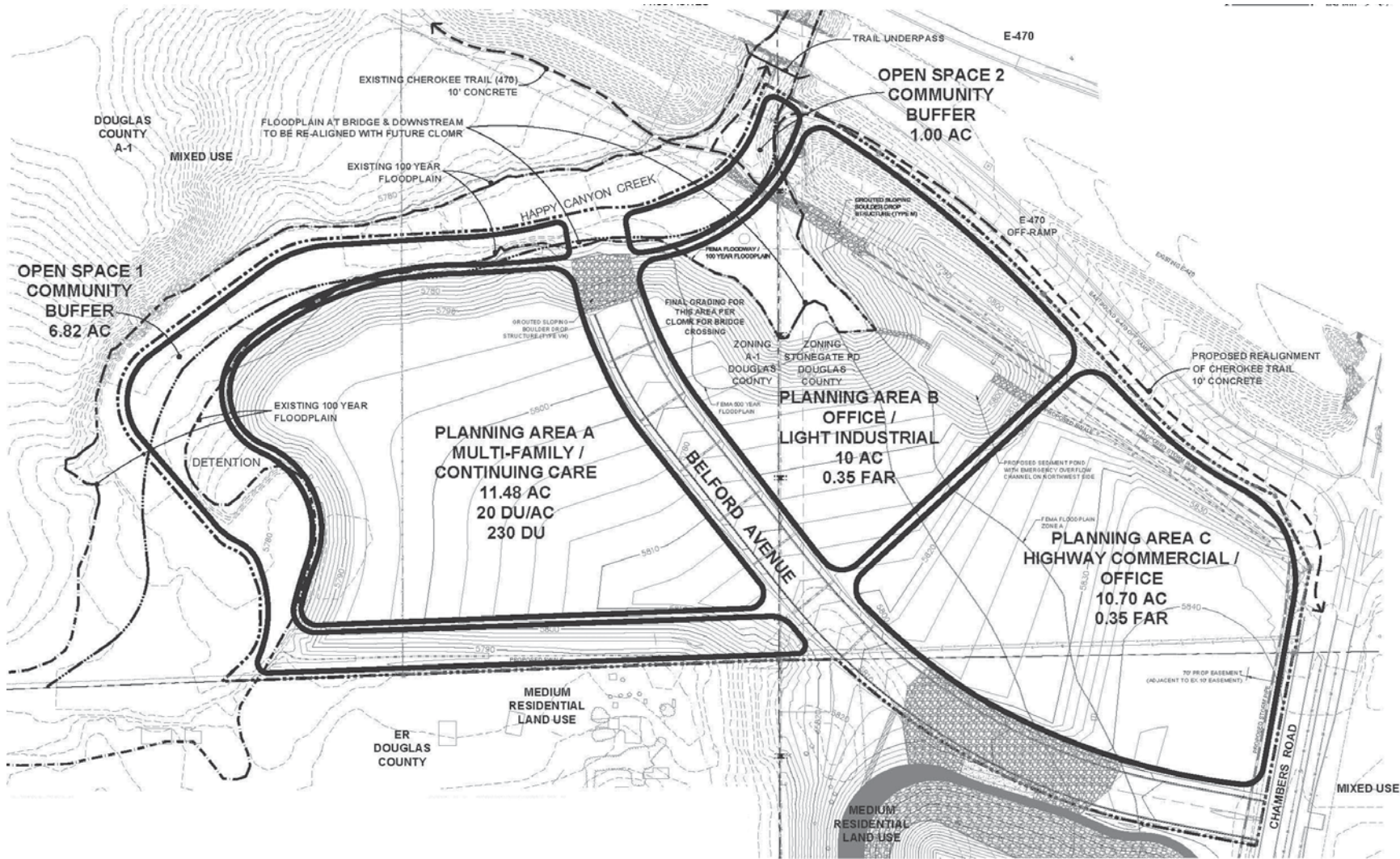


Figure 2
Site Plan

II. EXISTING CONDITIONS

A. Land Use

The Chambers High Point site is currently vacant land. Immediately south of the site are large-lot residential uses in Grandview Estates. The Stonegate development, partially developed with residential uses (future uses within Stonegate include commercial development) is located to the east of the site. Lands to the north of E-470 are partially developed with commercial and industrial uses. Lands to the west are generally vacant.

B. Roadway System

E-470 forms the northern boundary of the site. In the vicinity of the site, this six-lane toll road interchanges with Peoria Street, Chambers Road, and Jordan Road. The posted speed limit is 75 miles per hour (MPH). The ramp intersections at Chambers Road are currently signalized. Chambers Road forms the eastern site boundary. This north-south arterial roadway consists of a basic four-lane divided cross section with a posted speed limit of 45 MPH. Aventerra Parkway, a four-lane major collector (posted 35 MPH), intersects Chambers Road from the east, serving the Stonegate neighborhood. The intersection of Chambers Road and Aventerra Parkway is currently unsignalized, with stop sign control on the westbound Aventerra Parkway approach. Peoria Street is located just over one mile to the west of the site and is currently a two-lane roadway at the intersection with Belford Avenue, which serves the Meridian International Business Center. Peoria Street has a posted speed limit of 45 MPH. The intersection of Belford Avenue is currently signalized. Belford Avenue within Meridian has a posted speed limit of 35 MPH.

C. Traffic Volumes and Operations

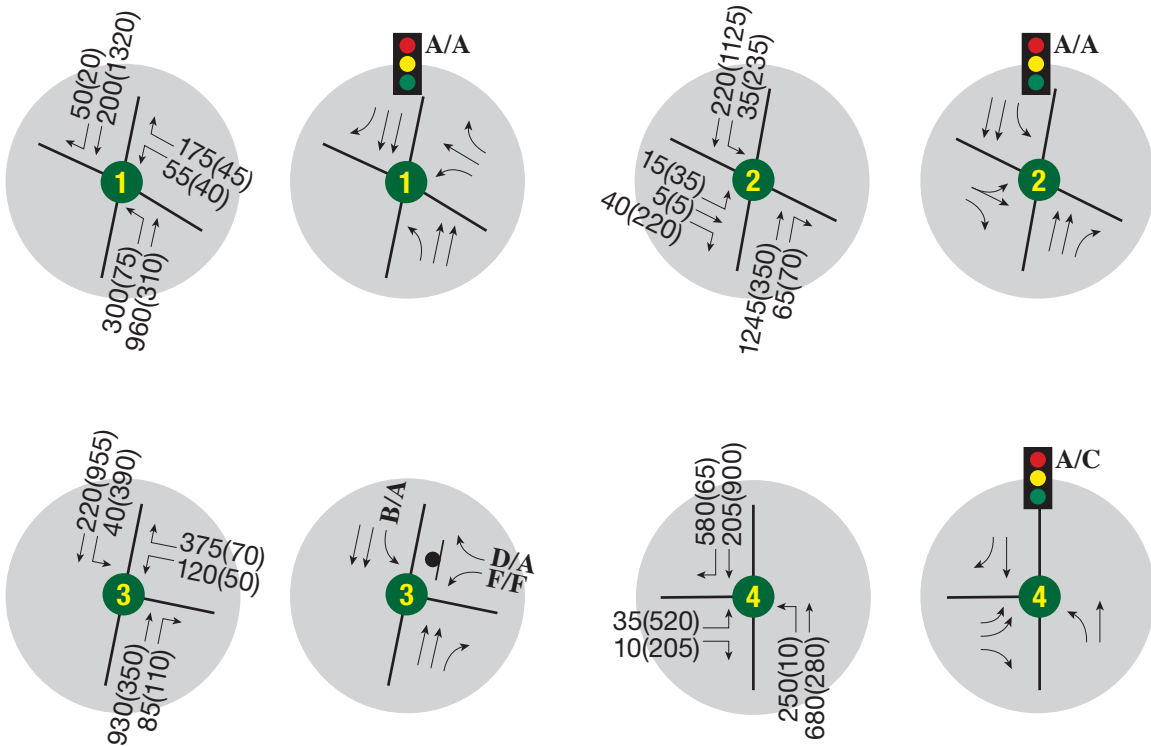
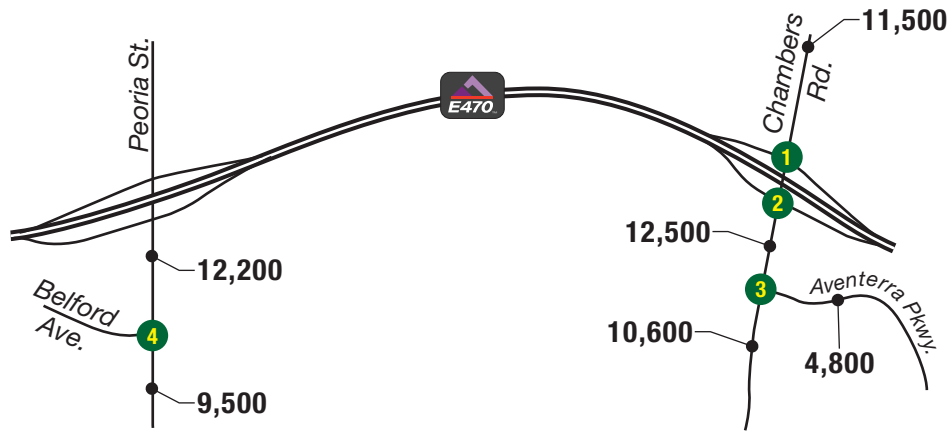
AM and PM peak hour turning movement counts were recently conducted at the intersections of Chambers Road and the E-470 EB and WB ramps, the intersection of Chambers Road and Aventerra Parkway, and the intersection at Peoria Street and Belford Avenue. A 24-hour automated roadway count was also conducted on Chambers Road (between E-470 and Aventerra Parkway) adjacent to the site (count data sheets are included in **Appendix A**).

Figure 3 illustrates the existing traffic volumes within the study area. It can be seen that Chambers Road currently experiences approximately 12,500 vehicles per day (VPD), Aventerra Parkway experiences an estimated 4,800 VPD and Peoria Street experiences approximately 12,200 VPD within the study area.

Traffic operations within the study area were evaluated according to techniques documented in the *Highway Capacity Manual* (Transportation Research Board, 2010) using the existing traffic volumes, intersection geometry, and traffic control. Level of Service (LOS) is a qualitative measure of traffic operational conditions based on roadway capacity and vehicle delay. LOS is described by a letter designation ranging from A to F, with LOS A representing almost free-flow travel, while LOS F represents congested conditions. For signalized intersections, LOS is reported as an average for the entire intersection. For stop-sign controlled intersections, LOS is calculated for each movement that must yield the right-of-way. In urbanized areas, LOS D is typically considered to be acceptable for peak hour traffic operations.

The existing traffic control, intersection geometry, and results of the LOS analysis are included on **Figure 3** (analysis worksheets and a summary LOS table are included in **Appendix B**). In general, traffic operations within the study area are currently acceptable. Both signalized intersections at the ramps to C-470 currently operate at LOS A during the AM and PM peak hours and the signalized intersection at Peoria Street and Belford Avenue currently operates at LOS C or better.

As indicated, however, the westbound left turn movement at the unsignalized intersection of Chambers Road and Aventura Parkway currently operates at LOS F during both peak hours. The westbound right turn movement operates at LOS D during the AM peak hour, due to the high northbound through volume on Chambers Road during the morning commute, and LOS A during the PM peak hour. The southbound left turn movement operates at LOS B or better. The existing traffic volumes at this intersection approach peak hour signal warrant criteria per the *Manual on Uniform Traffic Control Devices*, FHWA, 2009 (*MUTCD*), suggesting that a traffic signal may soon be warranted.



LEGEND

- xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
- X/X = AM/PM Peak Hour Level of Service
- XXXX = Daily Traffic Volumes
- = Stop Sign
- 🚦 = Traffic Signal

Figure 3
Existing Traffic Conditions

III. PROPOSED CONDITIONS

A. Site Trip Generation

As previously discussed, the proposed development at Chambers High Point would consist of a mix of light industrial, office, restaurant, bank, hotel and multi-family residential uses. Estimates of land use quantities were provided by the developer.

The number of vehicle trips generated by the proposed development was estimated based on the data and procedures documented in *Trip Generation, Institute of Transportation Engineers*, Ninth Edition, 2012. The trip rates contained in the manual are developed primarily through field observations of similar land uses throughout the nation. The data contained in the trip generation manual are recognized nationally and by most jurisdictions in Colorado. **Table 1** shows the trip generation estimates for each of the planning areas within Chambers High Point.

Table 1. Site Trip Generation Estimates – Chambers High Point

| Planning Area | Land Use | ITE Code | Quantity | Daily Trips | AM Peak Hour | | | PM Peak Hour | | |
|---|---------------------------|----------|-------------|-------------|--------------|------------|------------|--------------|------------|------------|
| | | | | | In | Out | Total | In | Out | Total |
| PA-A | Multi-Family (1) | 220 | 230 DU | 2472 | 23 | 94 | 117 | 39 | 50 | 143 |
| | Total | | | 2472 | 23 | 94 | 117 | 39 | 50 | 143 |
| | <i>Internal Reduction</i> | | | 537 | 2 | 21 | 23 | 16 | 15 | 31 |
| | PA-A Total | | | 1935 | 21 | 73 | 94 | 77 | 35 | 112 |
| PA-B | Office (2) | 710 | 76 KSF | 1068 | 105 | 14 | 119 | 19 | 94 | 113 |
| | Light Industrial (3) | 110 | 76 KSF | 531 | 62 | 8 | 70 | 9 | 65 | 74 |
| | Total | | | 1599 | 167 | 22 | 189 | 28 | 159 | 187 |
| | <i>Internal Reduction</i> | | | 49 | 10 | 9 | 28 | 3 | 3 | 6 |
| PA-B Total | | | 1550 | 148 | 13 | 161 | 25 | 156 | 181 | |
| PA-C | Fast Food Rest. (4) | 934 | 6 KSF | 2977 | 139 | 134 | 273 | 102 | 94 | 196 |
| | Drive-In Bank (5) | 912 | 5 KSF | 741 | 34 | 26 | 60 | 61 | 61 | 122 |
| | Office (2) | 710 | 100 KSF | 1313 | 137 | 19 | 156 | 25 | 124 | 149 |
| | Hotel (6) | 310 | 150 Rooms | 1226 | 47 | 33 | 80 | 46 | 44 | 90 |
| | Total | | | 6257 | 357 | 212 | 569 | 234 | 323 | 557 |
| | <i>Internal Reduction</i> | | | 802 | 72 | 55 | 127 | 35 | 36 | 71 |
| PA-C Total | | | 5455 | 285 | 157 | 442 | 199 | 287 | 486 | |
| TOTAL EXTERNAL TRIPS | | | | 8940 | 454 | 243 | 697 | 297 | 482 | 779 |
| (1) ITE Code 220. Apartments (2) ITE Code 710. General Office Building (3) ITE Code 110. General Light Industrial (4) ITE Code 934. Fast-Food Restaurant with Drive-Thru (5) ITE Code 912. Drive-in Bank (6) ITE Code 310. Hotel | | | | | | | | | | |

It can be seen that Chambers High Point would have the potential to generate approximately 8,940 external vehicle trips on a daily basis. About 697 of these trips would occur in the AM peak hour, and about 779 of these trips would occur in the PM peak hour. Of note, some of the proposed land uses would have the potential to attract trips from traffic passing by the site on the adjacent roadways. To be conservative, however, potential pass-by reductions have been omitted from this analysis. Internal trip reductions to account for interaction between the residential and retail uses were based on ITE methodologies as documented in **Appendix C**. The calculated internal capture of 21 percent AM and 13 percent PM was assigned between Planning Areas A, B, and C, either internally between parcels or via Belford Avenue.

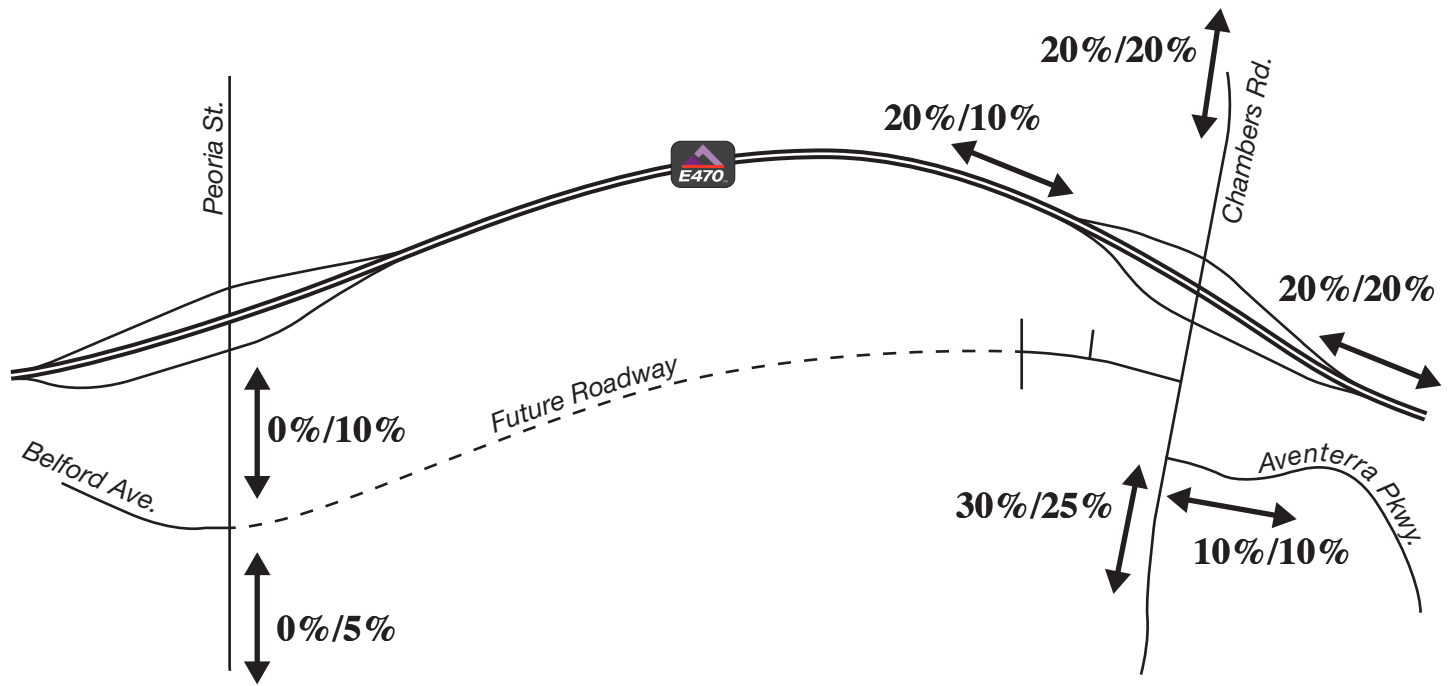
B. Site Trip Distribution

The site trip generation estimates were distributed to the adjacent roadways based on existing and projected future travel patterns. **Figure 4** illustrates the estimated distribution for both Short Range and Long Range Future scenarios. As shown, the future extension of the Belford Avenue west to Peoria Street is expected to attract a component of site generated traffic volumes by the year 2035, with consequent reductions to the site component along E-470 between Chambers Road and Peoria Street.

C. Site Traffic Volumes

The resultant Short Range Future site generated traffic assignment is illustrated on **Figure 5**. As shown, Chambers High Point is projected to contribute daily traffic volumes in the approximate range of 1,790 to 5,360 VPD to Chambers Road. Aventerra Parkway would experience about 900 VPD. Belford Avenue within the site would experience approximately 8,940 VPD.

The Long Range Future assignment is depicted on **Figure 6**. As shown, Chambers High Point is projected to contribute daily traffic volumes in the approximate range of 1,790 to 4,470 VPD to Chambers Road. The reduction from the Short Range Future is due to site traffic now using Belford Avenue, which is projected to be extended west of the site to Peoria Street. Aventerra Parkway would continue to experience about 900 VPD in Chambers High Point generated traffic. Belford Avenue adjacent to the site would experience an estimated 7,600 VPD. West of the site, Belford Avenue is anticipated to experience an additional 1,340 VPD of site related traffic. Peoria Street north of the Belford Avenue intersection is projected to experience about 900 VPD of site generated traffic and approximately 440 VPD south of the intersection with Belford Avenue.

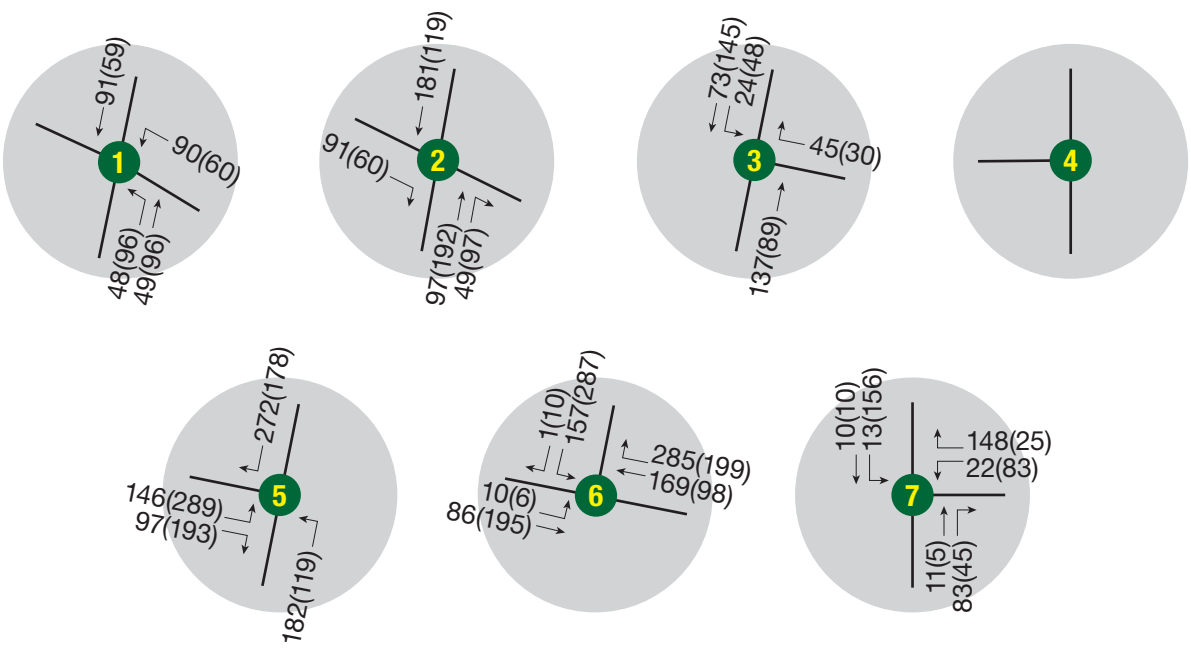
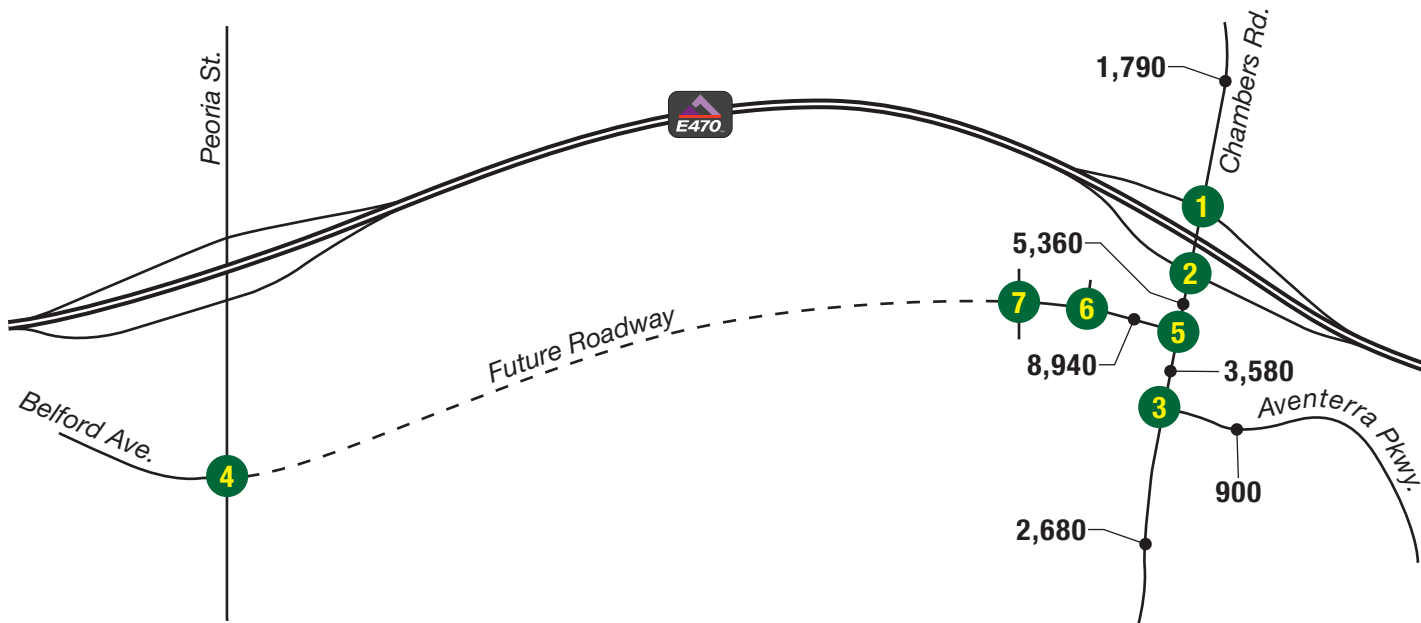


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\longleftrightarrow **XX%/XX%** = Short Range/ Long Range Trip Distribution

Figure 4
Trip Distribution

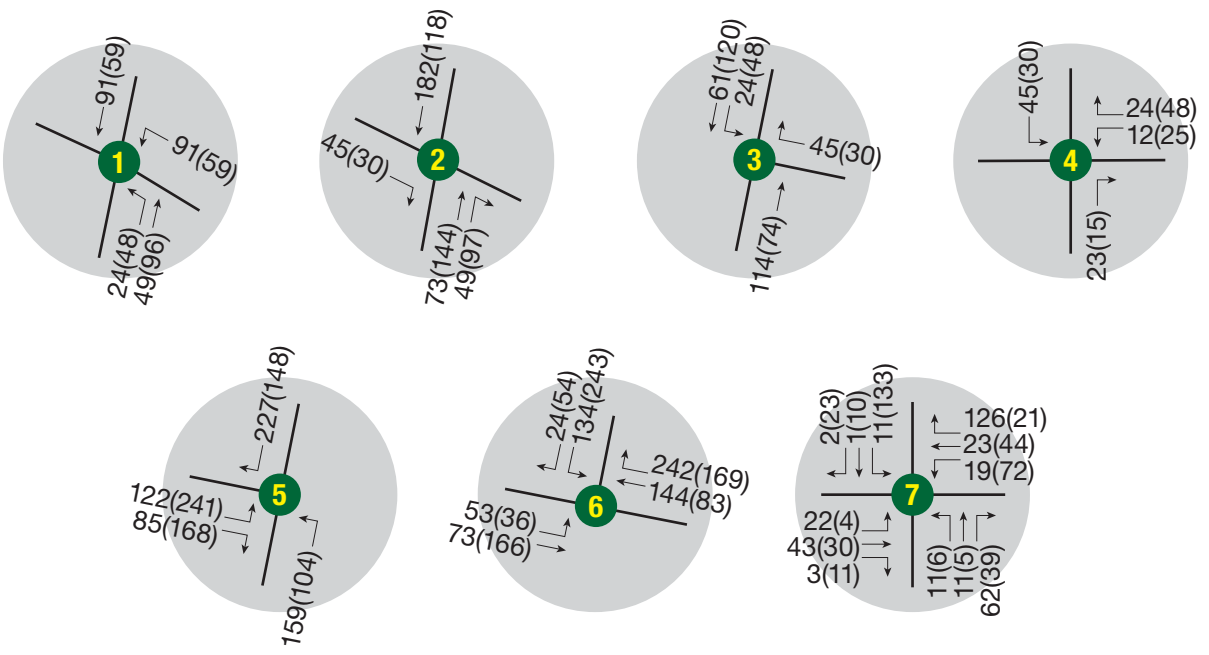
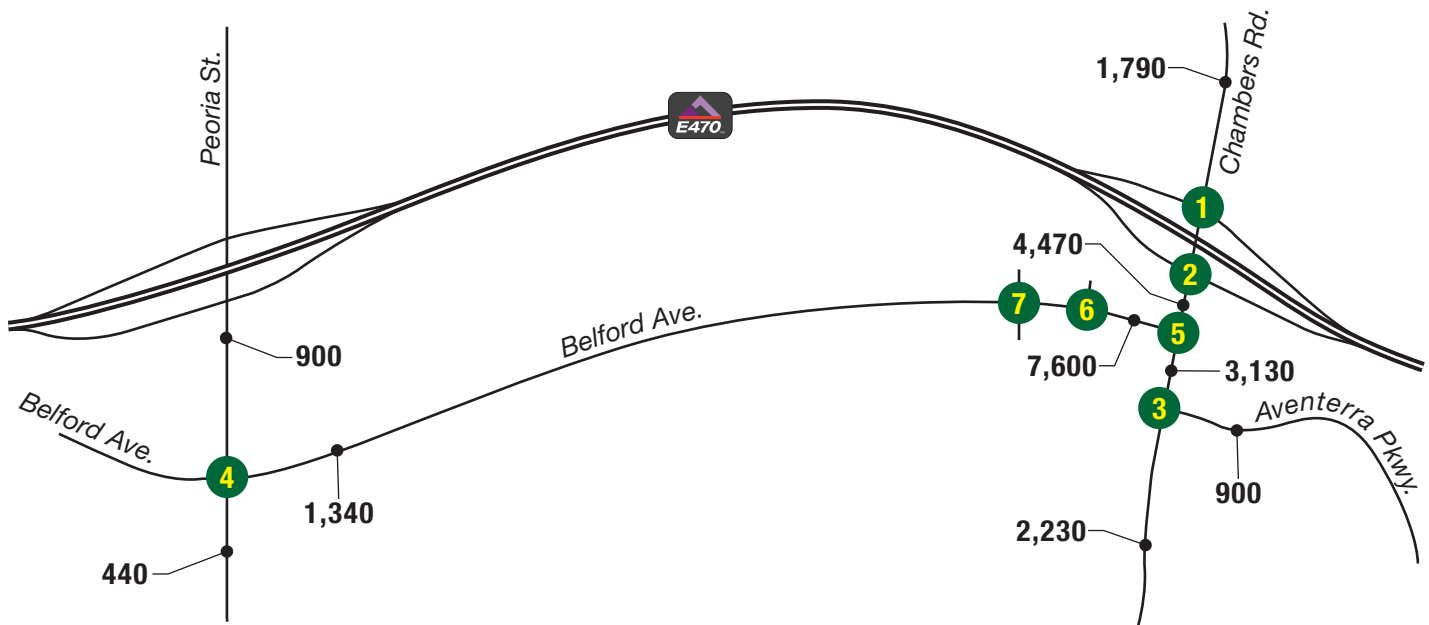
NORTH



LEGEND

XXX(XXX) = AM(PM) Peak Hour Traffic Volumes
 XXXX = Daily Traffic Volumes

Figure 5
 2016 Site Generated Traffic Volumes



LEGEND

xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
 XXXX = Daily Traffic Volumes

Figure 6
 2035 Site Generated Traffic Volumes

IV. FUTURE CONDITIONS

A. Background Traffic

Short Range Future

Background traffic is the component of roadway volumes which would utilize the adjacent roadway system regardless of site development. Projections contained in the Denver Regional Council of Governments (DRCOG) 2035 traffic model indicate that traffic volumes along Chambers Road are projected to grow at a rate of approximately 4.5 percent per year. Peoria Street traffic volumes are projected to grow at a rate of about 3.8 percent per year. These rates were applied to the existing volumes to obtain year 2016 background traffic volumes for the Short Range Future scenario, as shown on **Figure 7**. It can be seen that daily traffic along Chambers Road would be in the approximate range of 11,300 to 13,300 VPD within the study area. Aventerra Parkway would experience about 5,000 VPD in background traffic. Peoria Street would experience approximately 9,900 to 12,600 VPD within the study area. Note that the Belford Avenue connection between Peoria Street and Chambers High Point is seen as a longer term improvement and is not included in this scenario.

The Short Range Future background traffic volumes were used as the basis for intersection capacity analyses, the results of which are also shown on **Figure 7** (LOS worksheets are included in **Appendix D**). It can be seen that, in general, all study area intersections would operate within acceptable limits. However, congestion and delays at the unsignalized intersection of Aventerra Parkway and Chambers Road would continue in the short range future. As previously noted, current traffic volumes at this intersection approach peak hour threshold criteria to warrant signalization.

Long Range Future

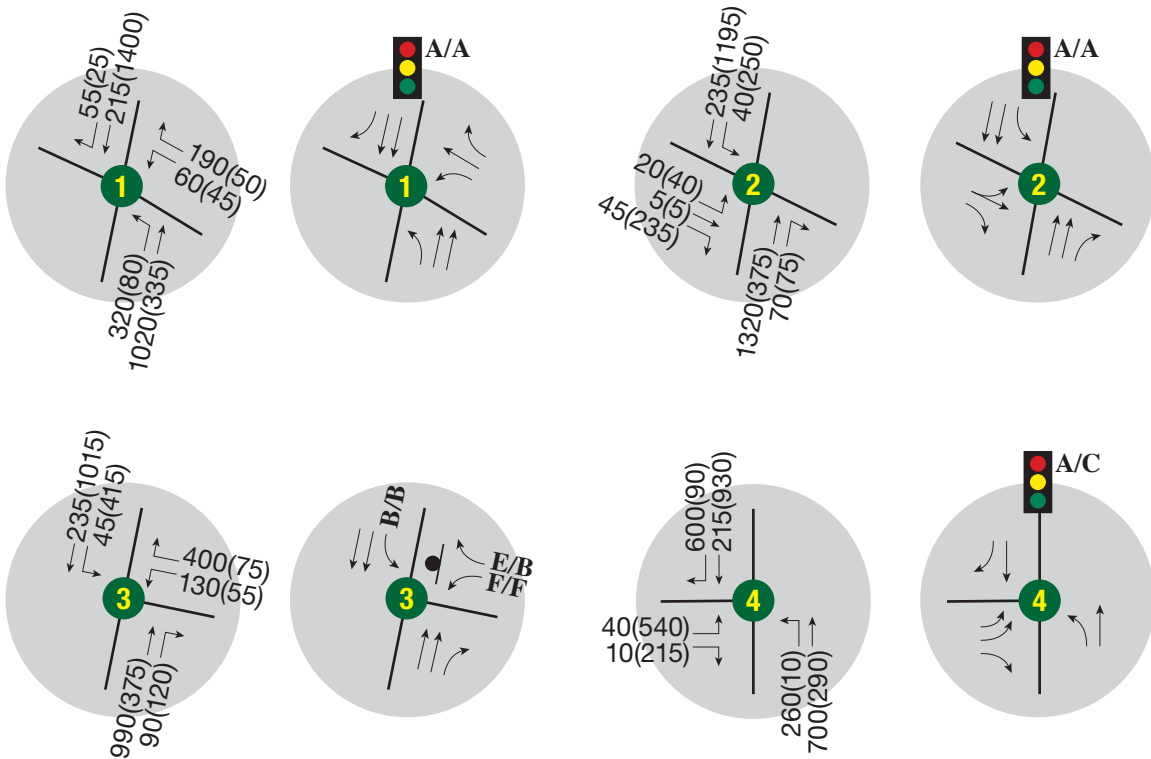
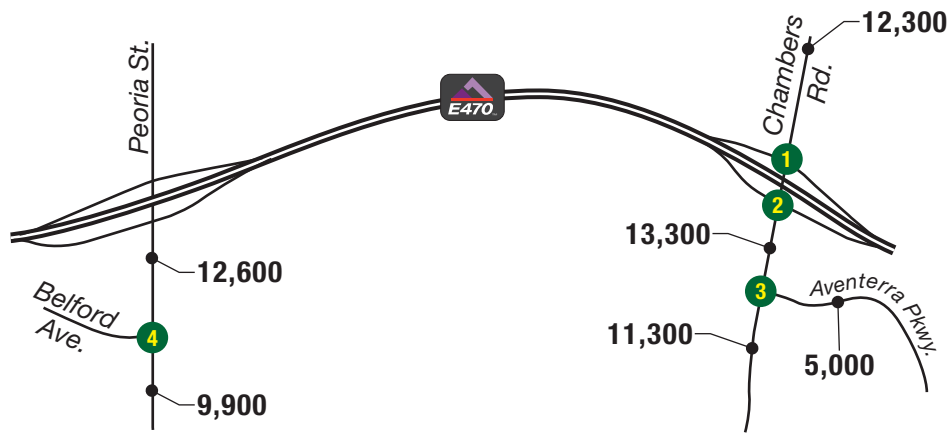
The Long Range Future (year 2035) background traffic volumes, shown on **Figure 8**, are also based on the annual growth trends extracted from the DRCOG model. Although not included in the DRCOG model network, Belford Avenue is envisioned to be completed within this time frame in conjunction with potential development to the west of the Chambers High Point site. Future traffic volumes along Belford Avenue include the following:

- Meridian International Business Center. This development is estimated to be approximately 70 percent built out. Meridian-oriented traffic volumes were increased to build out levels. 10 percent of the resultant Meridian volumes were assigned to Belford Avenue east of Peoria Street.
- Chambers Crossing. This planned development would be located along Belford Avenue west of the Chambers High Point site. Traffic projections for these primarily commercial developments were extracted from the report entitled *Chambers Crossing Transportation Impact Study*, Fehr & Peers, June 2012 and added to the Long Range Future background scenario.
- Other Potential Development. Vacant lands to the west of Chambers Crossing could also develop within the 2035 horizon. These potential future uses were estimated to account for about 40 percent of the background traffic on Belford Avenue.

As shown on **Figure 8**, approximately 9,500 VPD in background traffic would use Belford Avenue west of Chambers Road and approximately 5,000 VPD east of Peoria Street. Daily traffic along Chambers Road would increase to approximately 28,700 to 31,800 VPD within the study area. Aventerra Parkway would experience about 7,700 VPD in background traffic. Peoria Road would experience approximately 21,000 to 25,900 VPD within the study area.

The Long Range Future background traffic volumes were used as the basis for intersection capacity analyses, the results of which are also shown on **Figure 8** (LOS worksheets and a summary LOS table are included in Appendix D). As depicted, traffic signals are anticipated within this time frame at the Belford Avenue and Aventerra Parkway intersections along Chambers Road. Signalized operations along Chamber Road would be acceptable, at LOS D or better, during peak times. Along Peoria Street, the signalized intersection with Belford Avenue would have a projected LOS D during the AM peak hour and LOS E during the PM peak hour.

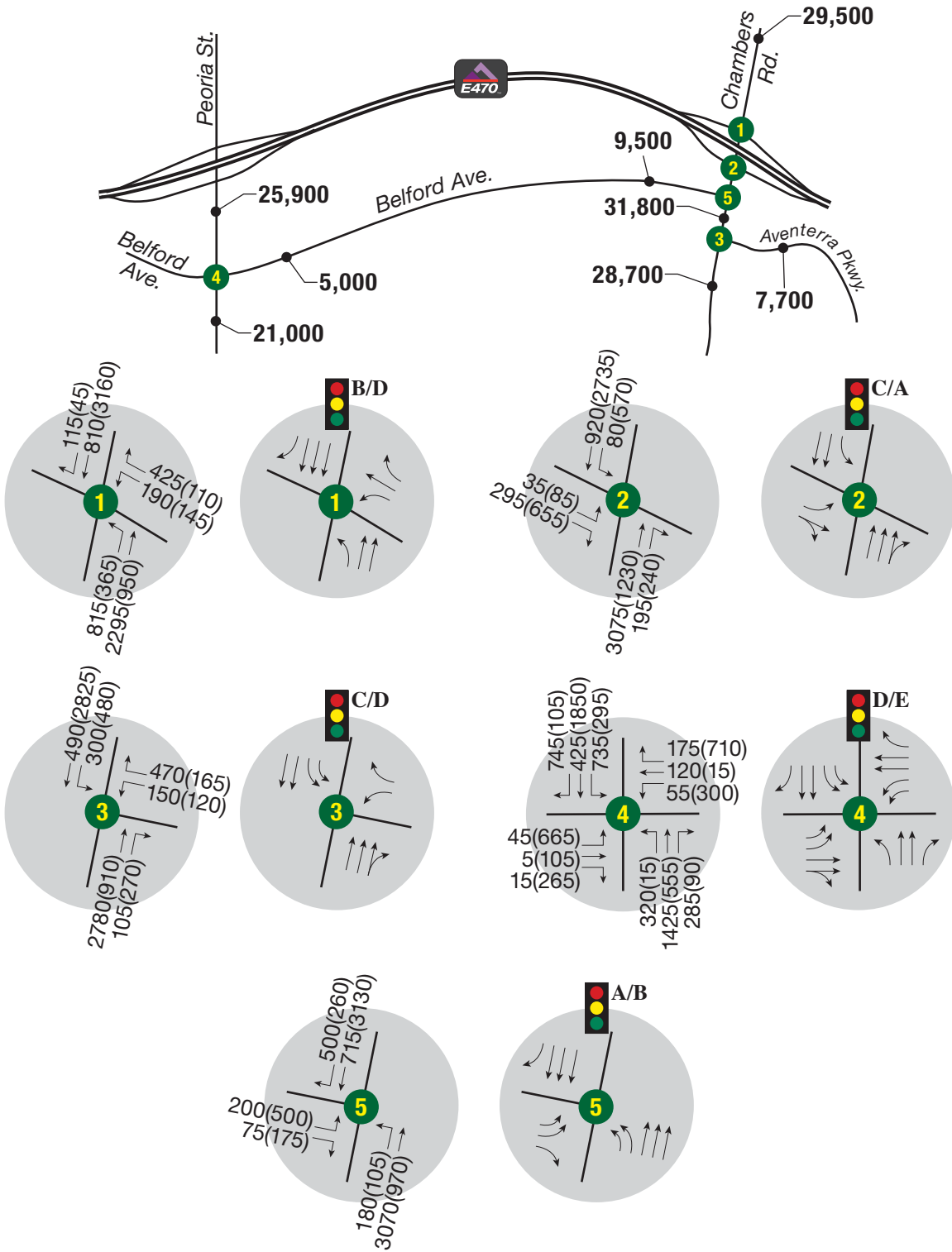
Because dual left-turn lanes are typically considered when the associated volume exceeds 300 vehicles per hour (VPH), background geometric improvements along Chambers Road include dual left turn lanes northbound and eastbound at Belford Avenue, and southbound at Aventerra Parkway. At the intersection of Peoria Street and Belford Avenue dual left turn lanes are included for the southbound, westbound and eastbound movements. It was also anticipated that there would be three through-lanes in each direction along Chambers Road in the vicinity of the site, up to the E-470 bridge and two through-lanes in each direction along Peoria Street.



LEGEND

- xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
- X/X = AM/PM Peak Hour Level of Service
- XXXX = Daily Traffic Volumes
- = Stop Sign
- 🚦 = Traffic Signal

Figure 7
2016 Short Range Future Background Traffic Conditions



LEGEND

- xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
- X/X = AM/PM Peak Hour Level of Service
- XXXX = Daily Traffic Volumes
- = Stop Sign
- 🚦 = Traffic Signal

Figure 8
2035 Long Range Future Background Traffic Conditions

B. Total Future Traffic Volumes*Short Range Future*

The Short Range Future site generated traffic volumes (**Figure 5**) were added to the corresponding background volumes (**Figure 7**) to produce the Short Range Future total traffic volumes shown on **Figure 9**. As indicated, total daily traffic along Chambers Road would increase to approximately 16,880 VPD adjacent to the site. Belford Avenue would experience about 8,940 VPD. Aventerra Parkway would experience about 5,900 VPD in the year 2016.

Long Range Future

The Long Range Future site generated traffic volumes (**Figure 6**) were added to the Long Range Future background traffic volumes (**Figure 8**) to produce the year 2035 total traffic volumes shown on **Figure 10**. As depicted, total daily traffic along Chambers Road would range from approximately 31,290 VPD (north of E-470) to approximately 34,930 VPD adjacent to the site. Belford Avenue would experience about 17,100 VPD through the site near Chambers Road and 6,340 VPD west of the site near Peoria Street. Aventerra Parkway would expect to experience about 8,600 VPD.

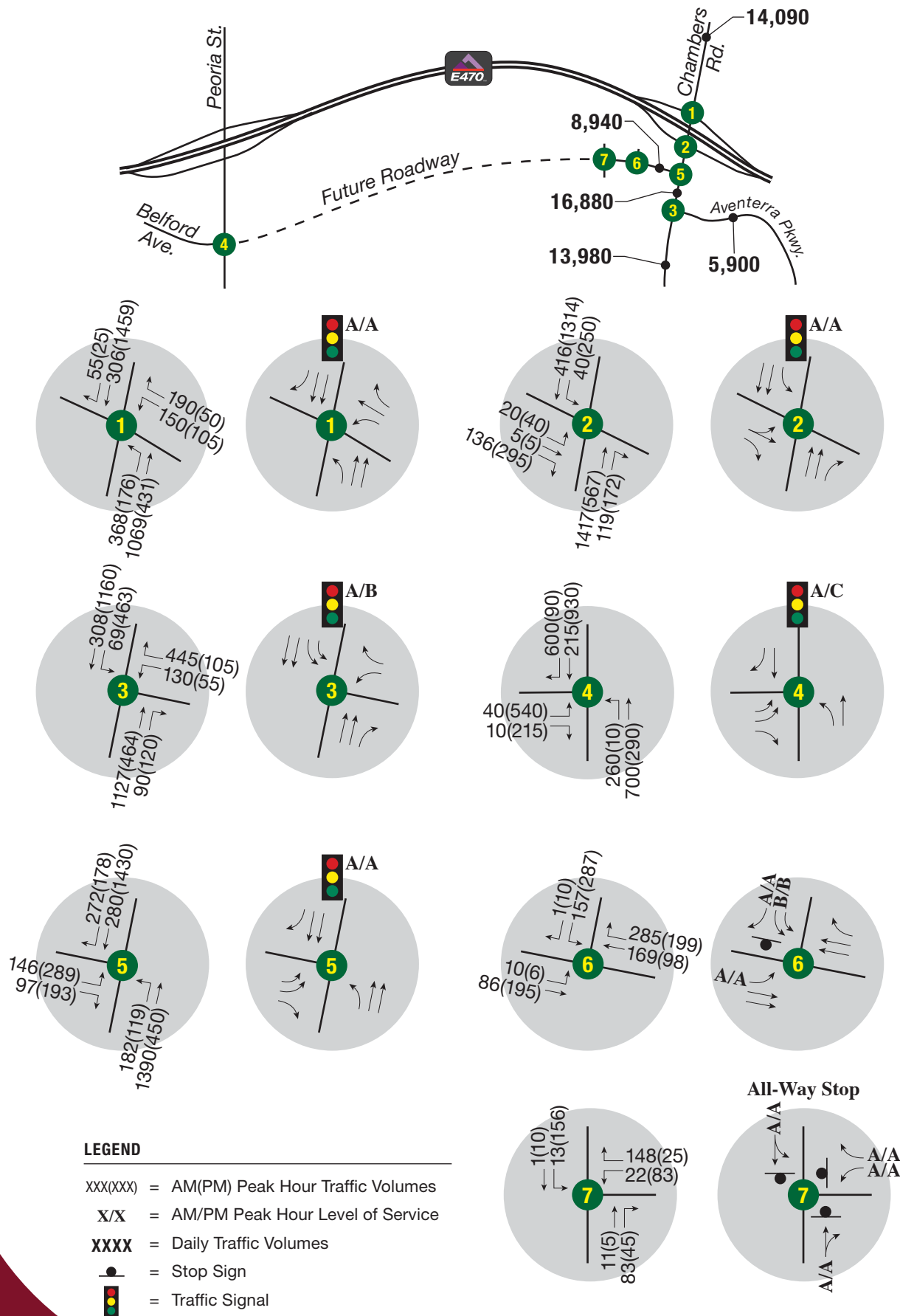
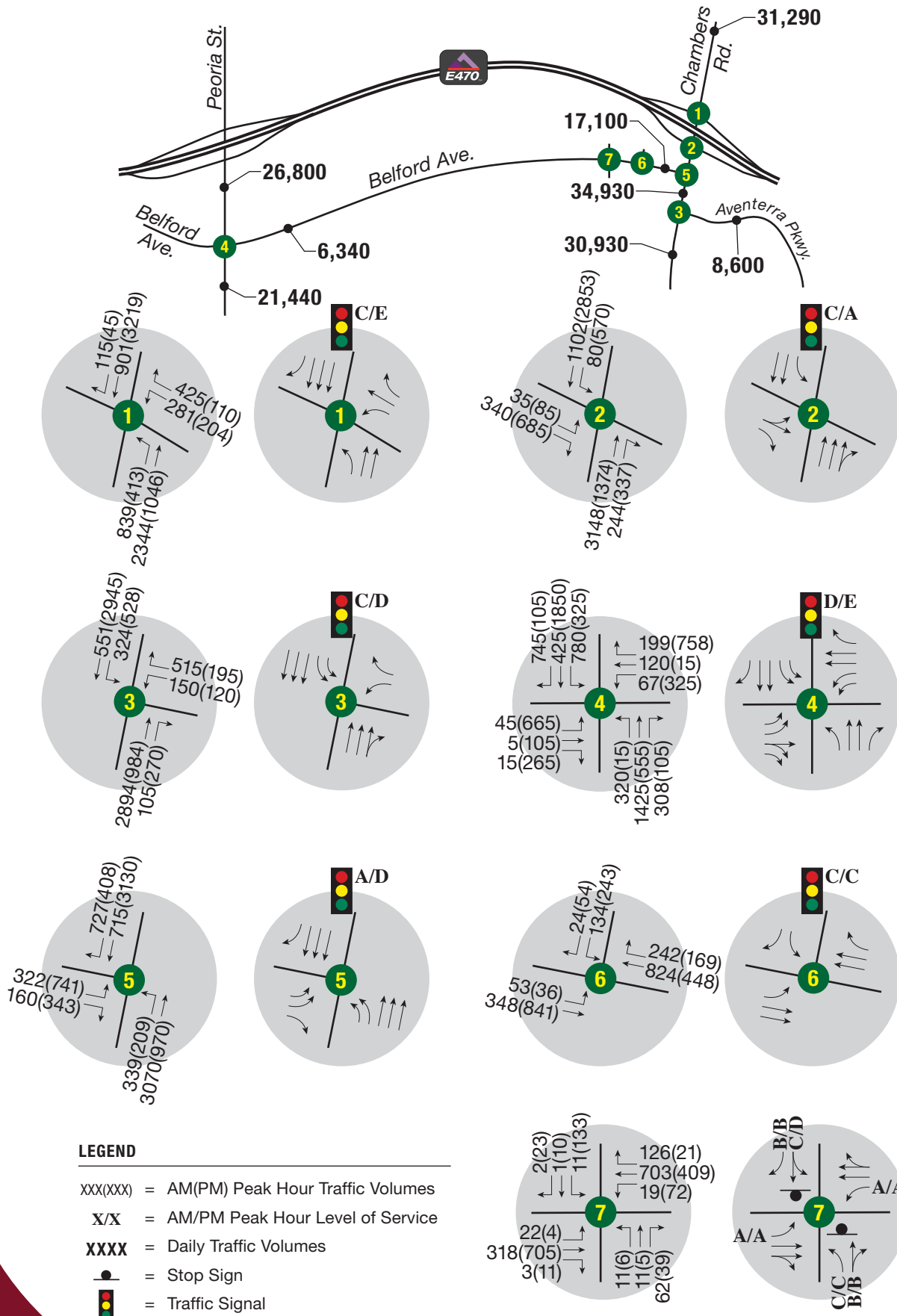


Figure 9
2016 Short Range Future Total Traffic Conditions



LEGEND

- xxx(xxx) = AM(PM) Peak Hour Traffic Volumes
- X/X = AM/PM Peak Hour Level of Service
- XXXX = Daily Traffic Volumes
- = Stop Sign
- 🚦 = Traffic Signal

Figure 10
2035 Long Range Future Total Traffic Conditions

V. SITE CIRCULATION AND DESIGN EVALUATION

A. *Level of Service*

The Short Range Future total peak hour volumes were used as the basis for intersection capacity analyses, the results of which are also summarized on **Figure 9** (analysis worksheets and a summary LOS table are included in **Appendix E**). By the year 2016, traffic signals would be anticipated at Belford Avenue and at Aventerra Parkway. Projected traffic operations along Chambers Road would be at LOS C or better. Operations at the site access intersections would be acceptable under STOP sign control.

Projected Short Range Future geometric improvements include a right-turn auxiliary lane along southbound Chambers Road at Belford Avenue. Due to the close spacing of Belford Avenue to the eastbound E-470 ramps (approximately 680 feet), this lane should be continuous between the two intersections.

Dual left-turn lanes would be required on the eastbound approach at the Chambers Road/Belford Avenue intersection. Dual left-turn lanes would also be required on southbound Chambers Road at Aventerra Parkway.

Intersection capacity analyses were also conducted using the Long Range Future total peak hour volumes, as summarized on **Figure 10** (analysis worksheets are included in **Appendix E**). By 2035, a traffic signal is projected to be required at the easternmost site access along Belford Avenue. In general, the projected intersection traffic operations within the study area would remain acceptable, at LOS D or better during peak times. During the PM peak hour, however, the intersection of Chambers Road and the westbound E-470 ramps would be at LOS E, indicating near-capacity conditions with some congestion and delays. Dual left-turn lanes would be required on the northbound approach at the Chambers Road/Belford Avenue intersection. The intersection of Peoria Street and Belford Avenue is also projected at LOS E during the PM peak hour; as previously noted, this condition is also anticipated under the long range background conditions, exclusive of site related traffic.

B. Auxiliary Lanes

The findings summarized above call for auxiliary lane improvements along Belford Avenue, Chambers Road and Peoria Street. Recommended lane length and taper dimensions were based on the Colorado Department of Transportation (CDOT) *State Highway Access Code* (SHAC). The minimum storage requirement of 100 feet, per Town of Parker Standards, was applied. **Table 2** summarizes the recommended auxiliary turn lane dimensions, based on Long Range Future conditions.

Table 2. Storage Length Recommendations

| Intersection | Direction | Type | Storage Length (ft) | Transition Taper Ratio |
|-----------------------------------|-----------|------------|---------------------|------------------------|
| Belford Avenue & Chambers Road | NB | Left-Turn | 175* | Use Existing |
| | SB | Right-Turn | 435 | 13.5 : 1 |
| | EB | Right-Turn | 310 | 10 : 1 |
| Belford Avenue & PA-C Access | EB | Left-Turn | 100 | 10 : 1 |
| Belford Avenue & PA-A/PA-B Access | WB | Left-Turn | 100 | 10 : 1 |
| | EB | Left-Turn | 100 | 10 : 1 |
| Belford Avenue & Peoria Street | SB | Left-Turn | 400* | 13.5 : 1 |
| | WB | Left-Turn | 175* | 10 : 1 |
| | EB | Left-Turn | 350* | 10 : 1 |
| Chambers Road & Aventura Parkway | SB | Left-Turn | 275* | 13.5 : 1 |

* Dual left-turn lanes required. Storage indicated is a per lane dimension.

C. Signal Progression Analysis

The ability to travel along a signalized corridor without stopping for red signal indications is termed progressive movement. Arterial roadways with high levels of progression experience reduced delays and fewer stops. Signal progression is a function of signal spacing, signal timing, and travel speed. A key measure of progression is efficiency: the percent of the system cycle length available for progressive movement. Typically, an efficiency of 37 percent or higher is considered excellent, 25 to 36 percent is good, 13 to 24 percent is fair, and efficiencies of less than 13 percent indicate poor levels of progression.

A progression analysis was conducted using the SYNCHRO traffic analysis software for Chambers Road within the study area. The progression analysis utilized Long Range Future AM and PM peak hour traffic volume projections, a system cycle length of 120 seconds, and a progression speed of 45 MPH. The resultant time-space diagrams are included in **Appendix F**. It was determined that progression during the AM peak hour would have an efficiency of 33.8 percent, indicating good progression. The PM peak hour efficiency would be at 34.6 percent, also good.

VI. PROPOSED MITIGATION MEASURES

The following mitigation measures are projected to be required with development of the site in conjunction with regional growth:

Short Range Future

- Install a left-turn lane within the existing raised center median on the northbound approach at the intersection of Chambers Road and Belford Avenue. The median would be modified similar to the existing southbound left-turn lane at Aventerra Parkway, providing two-lane width, with the outer lane striped out. See **Figure 11** for a conceptual layout of improvements to Chambers Road.
- Install dual left-turn lanes on the eastbound approach at the intersection of Chambers Road and Belford Avenue.
- Install traffic signals at the Chambers Road/Belford Avenue and the Chambers Road/Aventerra Parkway intersections.
- Install dual left-turn lanes on southbound Chambers Road at the Aventerra Parkway intersection (restripe existing painted median area).
- Install a continuous acceleration/deceleration lane along southbound Chambers Road between the eastbound E-470 off-ramp and Belford Avenue.

Long Range Future

- Install traffic signal control at the easternmost site access along Belford Avenue.
- Install dual left-turn lanes on the northbound approach at the intersection of Chambers Road and Belford Avenue (restripe painted median). See **Figure 11** for a conceptual layout of improvements to Chambers Road.
- Widen Chambers Road to six through-lanes between E-470 and Aventerra Parkway. Maintain a continuous acceleration/deceleration lane along southbound Chambers Road between the eastbound E-470 off-ramp and Belford Avenue.
- Widen Peoria Street to four through-lanes from E-470 to south of the intersection with Belford Avenue.
- Install dual left-turn lanes on southbound, westbound and eastbound approaches at the intersection of Peoria Street and Belford Parkway.

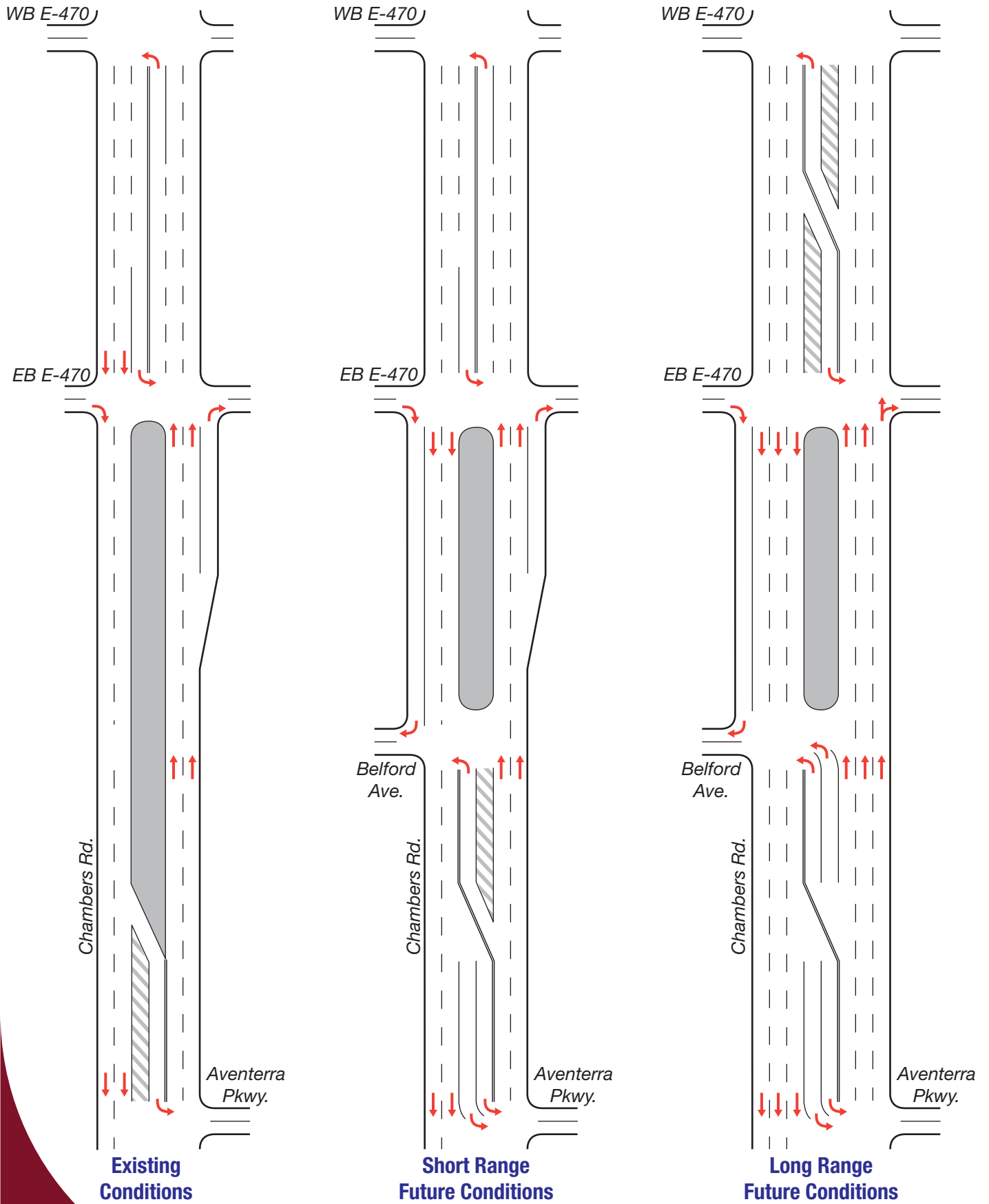


Figure 11
Chambers Road Improvements

VII. SUMMARY AND RECOMMENDATIONS

Chambers High Point is a proposed 32-acre mixed-use development to be located along the south side of E-470 just west of Chambers Road. The site would be bisected by an extension of Belford Avenue that would provide primary site access via two full-movement intersections.

The proposed land uses at Chambers High Point would have the potential to generate approximately 8,940 external vehicle trips on a daily basis. About 697 of these trips would occur in the AM peak hour, and about 779 of these trips would occur in the PM peak hour. The potential traffic impacts due to this additional traffic were evaluated under both Short Range Future (year 2016) and Long Range Future (year 2035) scenarios. In general, the adjacent roadway system would have sufficient capacity to accommodate the projected traffic volumes, subject to the following improvement recommendations:

Short Range Future

- Periodically monitor traffic volumes at the study area intersections and install traffic signals, as warranted. It is projected that along Chambers Road the Belford Avenue and the Aventerra Parkway intersections would both require signalization within the Short Range Future.
- Install dual left-turn lanes on the northbound and eastbound approaches at the intersection of Chambers Road and Belford Avenue.
- Install dual left-turn lanes on southbound Chambers Road at the Aventerra Parkway intersection, to accommodate projected background turning movement volumes.
- Install a continuous right-turn acceleration/deceleration lane along southbound Chambers Road between the eastbound E-470 off-ramp and Belford Avenue.

Long Range Future

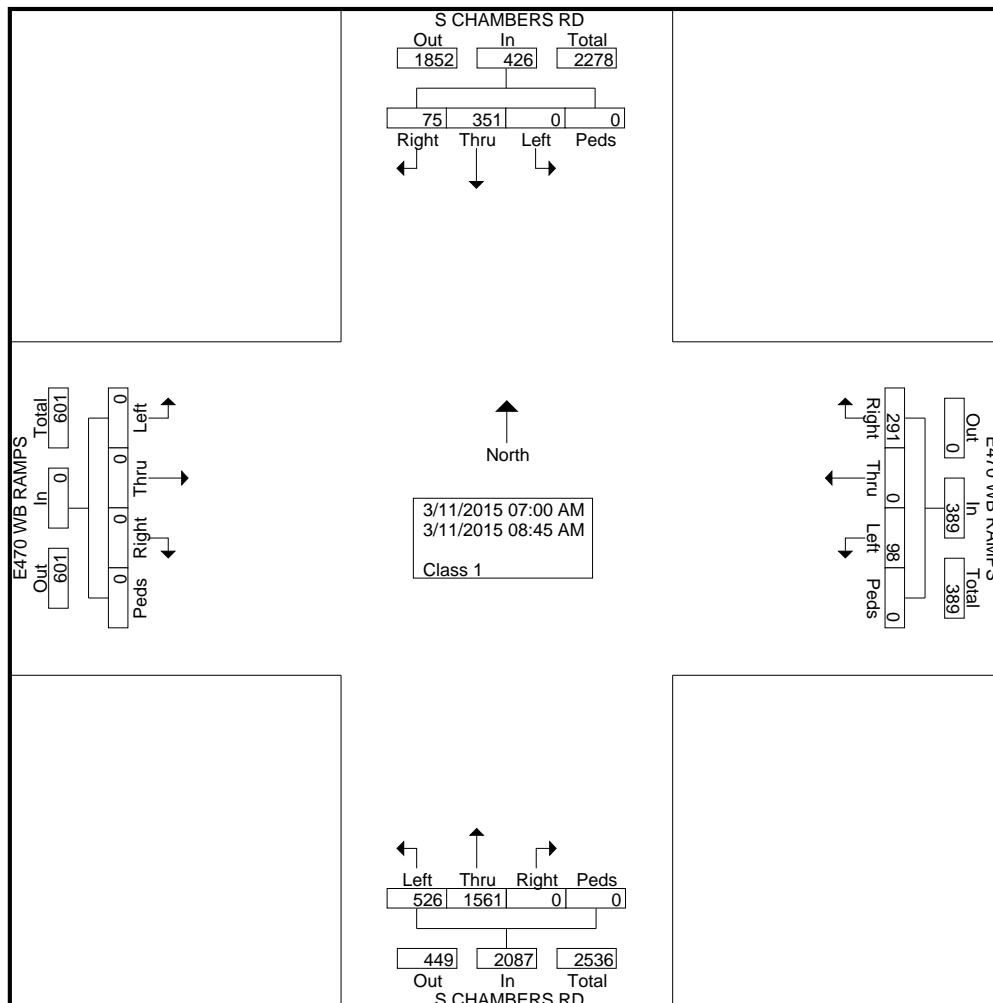
- Periodically monitor traffic volumes at the study area intersections and install traffic signals, as warranted. It is projected that the easternmost site access along Belford Avenue would require signalization in the Long Range Future.
- Widen Chambers Road to six through-lanes between E-470 and Aventerra Parkway. Maintain a continuous acceleration/deceleration lane along southbound Chambers Road between the eastbound E-470 off-ramp and Belford Avenue. This section of Chambers Road is projected to experience approximately 36,100 VPD by the year 2035. The Chambers High Point site related traffic equates to roughly 10 percent of the projected daily volume.
- Widen Peoria Street to four through-lanes from E-470 to south of the intersection with Belford Avenue to accommodate projected background traffic volumes.
- Install dual left-turn lanes on southbound, westbound and eastbound approaches at the intersection of Peoria Street and Belford Parkway, to accommodate projected background turning movement volumes.

APPENDIX A TRAFFIC COUNTS

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 Start Date : 3/11/2015
 Page No : 1

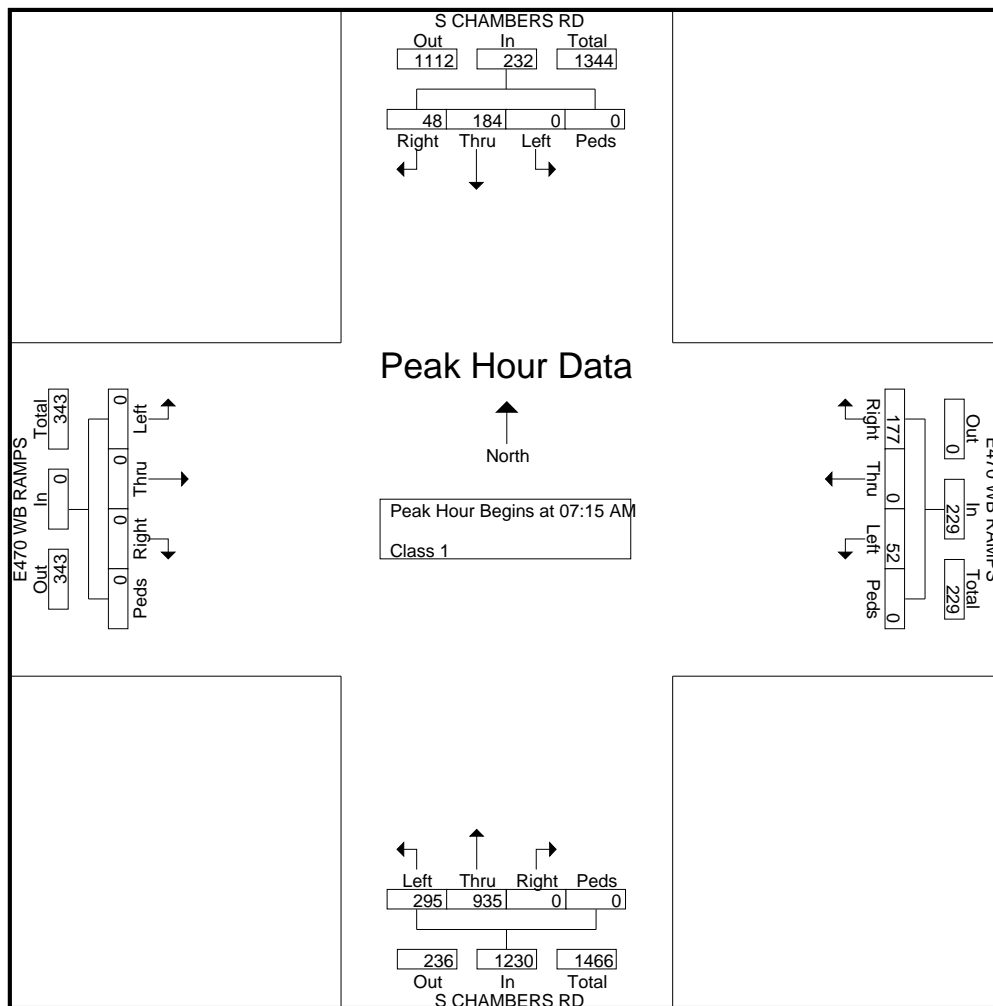
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| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 07:00 AM | 5 | 43 | 0 | 0 | 25 | 0 | 7 | 0 | 0 | 147 | 77 | 0 | 0 | 0 | 0 | 0 | 304 |
| 07:15 AM | 14 | 62 | 0 | 0 | 40 | 0 | 15 | 0 | 0 | 204 | 80 | 0 | 0 | 0 | 0 | 0 | 415 |
| 07:30 AM | 17 | 42 | 0 | 0 | 49 | 0 | 12 | 0 | 0 | 247 | 88 | 0 | 0 | 0 | 0 | 0 | 455 |
| 07:45 AM | 8 | 44 | 0 | 0 | 50 | 0 | 10 | 0 | 0 | 289 | 64 | 0 | 0 | 0 | 0 | 0 | 465 |
| Total | 44 | 191 | 0 | 0 | 164 | 0 | 44 | 0 | 0 | 887 | 309 | 0 | 0 | 0 | 0 | 0 | 1639 |
| 08:00 AM | 9 | 36 | 0 | 0 | 38 | 0 | 15 | 0 | 0 | 195 | 63 | 0 | 0 | 0 | 0 | 0 | 356 |
| 08:15 AM | 8 | 38 | 0 | 0 | 33 | 0 | 16 | 0 | 0 | 186 | 60 | 0 | 0 | 0 | 0 | 0 | 341 |
| 08:30 AM | 6 | 38 | 0 | 0 | 31 | 0 | 10 | 0 | 0 | 170 | 55 | 0 | 0 | 0 | 0 | 0 | 310 |
| 08:45 AM | 8 | 48 | 0 | 0 | 25 | 0 | 13 | 0 | 0 | 123 | 39 | 0 | 0 | 0 | 0 | 0 | 256 |
| Total | 31 | 160 | 0 | 0 | 127 | 0 | 54 | 0 | 0 | 674 | 217 | 0 | 0 | 0 | 0 | 0 | 1263 |
| Grand Total | 75 | 351 | 0 | 0 | 291 | 0 | 98 | 0 | 0 | 1561 | 526 | 0 | 0 | 0 | 0 | 0 | 2902 |
| Apprch % | 17.6 | 82.4 | 0 | 0 | 74.8 | 0 | 25.2 | 0 | 0 | 74.8 | 25.2 | 0 | 0 | 0 | 0 | 0 | |
| Total % | 2.6 | 12.1 | 0 | 0 | 10 | 0 | 3.4 | 0 | 0 | 53.8 | 18.1 | 0 | 0 | 0 | 0 | 0 | |



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 Start Date : 3/11/2015
 Page No : 2

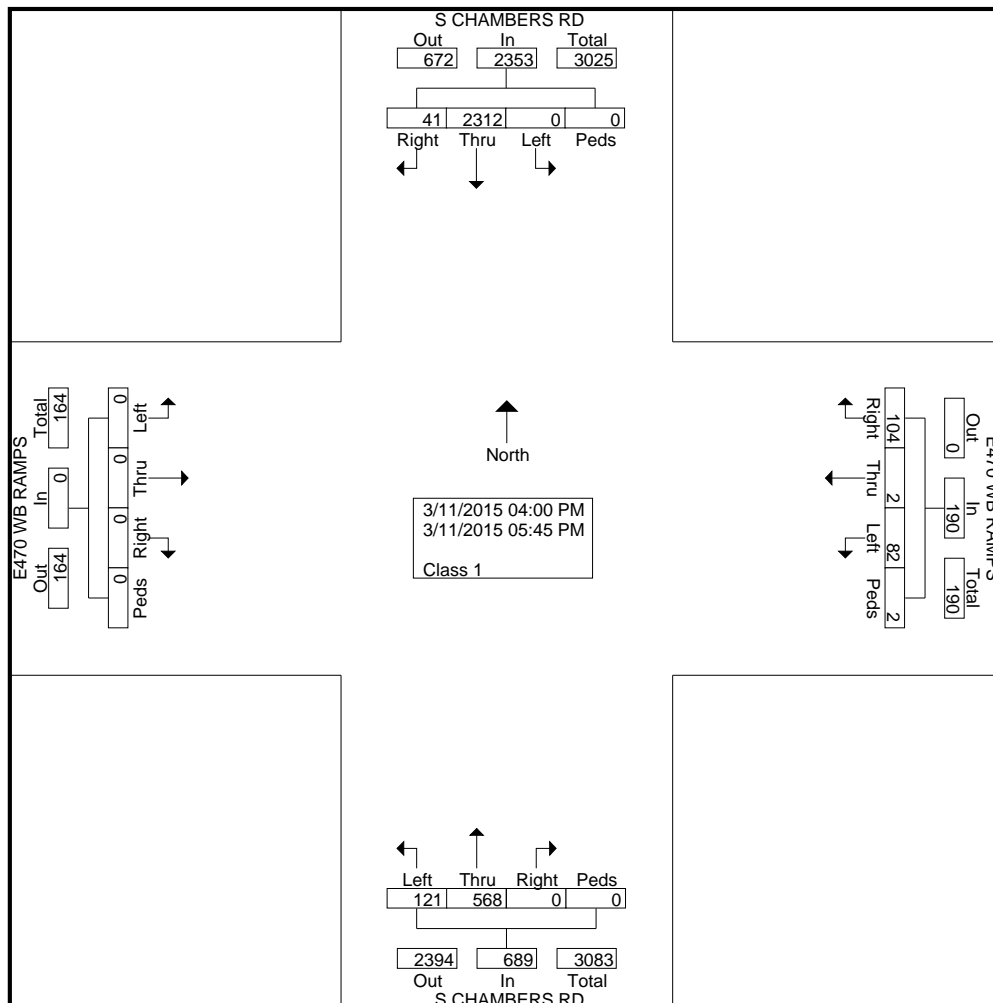
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| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 14 | 62 | 0 | 0 | 76 | 40 | 0 | 15 | 0 | 55 | 0 | 204 | 80 | 0 | 284 | 0 | 0 | 0 | 0 | 0 | 415 |
| 07:30 AM | 17 | 42 | 0 | 0 | 59 | 49 | 0 | 12 | 0 | 61 | 0 | 247 | 88 | 0 | 335 | 0 | 0 | 0 | 0 | 0 | 455 |
| 07:45 AM | 8 | 44 | 0 | 0 | 52 | 50 | 0 | 10 | 0 | 60 | 0 | 289 | 64 | 0 | 353 | 0 | 0 | 0 | 0 | 0 | 465 |
| 08:00 AM | 9 | 36 | 0 | 0 | 45 | 38 | 0 | 15 | 0 | 53 | 0 | 195 | 63 | 0 | 258 | 0 | 0 | 0 | 0 | 0 | 356 |
| Total Volume | 48 | 184 | 0 | 0 | 232 | 177 | 0 | 52 | 0 | 229 | 0 | 935 | 295 | 0 | 1230 | 0 | 0 | 0 | 0 | 0 | 1691 |
| % App. Total | 20.7 | 79.3 | 0.0 | 0.0 | | 77.3 | 0.0 | 22.7 | 0.0 | | 0.0 | 76 | 24 | 0.0 | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | |
| PHF | .706 | .742 | .000 | .000 | .763 | .885 | .000 | .867 | .000 | .939 | .000 | .809 | .838 | .000 | .871 | .000 | .000 | .000 | .000 | .000 | .909 |



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 Page No : 1

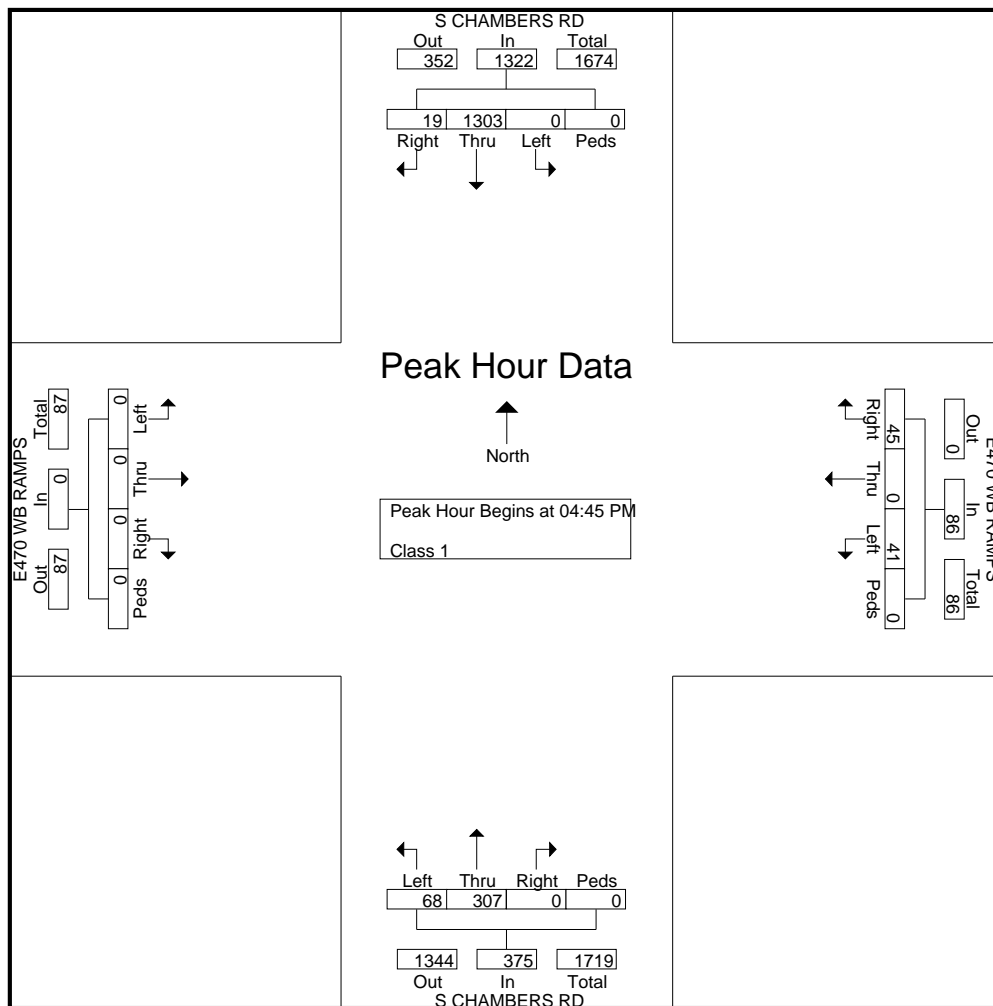
Groups Printed- Class 1

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| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 04:00 PM | 7 | 200 | 0 | 0 | 18 | 1 | 13 | 1 | 0 | 57 | 10 | 0 | 0 | 0 | 0 | 0 | 307 |
| 04:15 PM | 8 | 230 | 0 | 0 | 20 | 1 | 8 | 0 | 0 | 78 | 14 | 0 | 0 | 0 | 0 | 0 | 359 |
| 04:30 PM | 6 | 276 | 0 | 0 | 13 | 0 | 8 | 1 | 0 | 65 | 12 | 0 | 0 | 0 | 0 | 0 | 381 |
| 04:45 PM | 6 | 307 | 0 | 0 | 11 | 0 | 4 | 0 | 0 | 67 | 26 | 0 | 0 | 0 | 0 | 0 | 421 |
| Total | 27 | 1013 | 0 | 0 | 62 | 2 | 33 | 2 | 0 | 267 | 62 | 0 | 0 | 0 | 0 | 0 | 1468 |
| 05:00 PM | 4 | 333 | 0 | 0 | 11 | 0 | 14 | 0 | 0 | 73 | 10 | 0 | 0 | 0 | 0 | 0 | 445 |
| 05:15 PM | 6 | 393 | 0 | 0 | 12 | 0 | 5 | 0 | 0 | 71 | 17 | 0 | 0 | 0 | 0 | 0 | 504 |
| 05:30 PM | 3 | 270 | 0 | 0 | 11 | 0 | 18 | 0 | 0 | 96 | 15 | 0 | 0 | 0 | 0 | 0 | 413 |
| 05:45 PM | 1 | 303 | 0 | 0 | 8 | 0 | 12 | 0 | 0 | 61 | 17 | 0 | 0 | 0 | 0 | 0 | 402 |
| Total | 14 | 1299 | 0 | 0 | 42 | 0 | 49 | 0 | 0 | 301 | 59 | 0 | 0 | 0 | 0 | 0 | 1764 |
| Grand Total | 41 | 2312 | 0 | 0 | 104 | 2 | 82 | 2 | 0 | 568 | 121 | 0 | 0 | 0 | 0 | 0 | 3232 |
| Apprch % | 1.7 | 98.3 | 0 | 0 | 54.7 | 1.1 | 43.2 | 1.1 | 0 | 82.4 | 17.6 | 0 | 0 | 0 | 0 | 0 | |
| Total % | 1.3 | 71.5 | 0 | 0 | 3.2 | 0.1 | 2.5 | 0.1 | 0 | 17.6 | 3.7 | 0 | 0 | 0 | 0 | 0 | |



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 Page No : 2

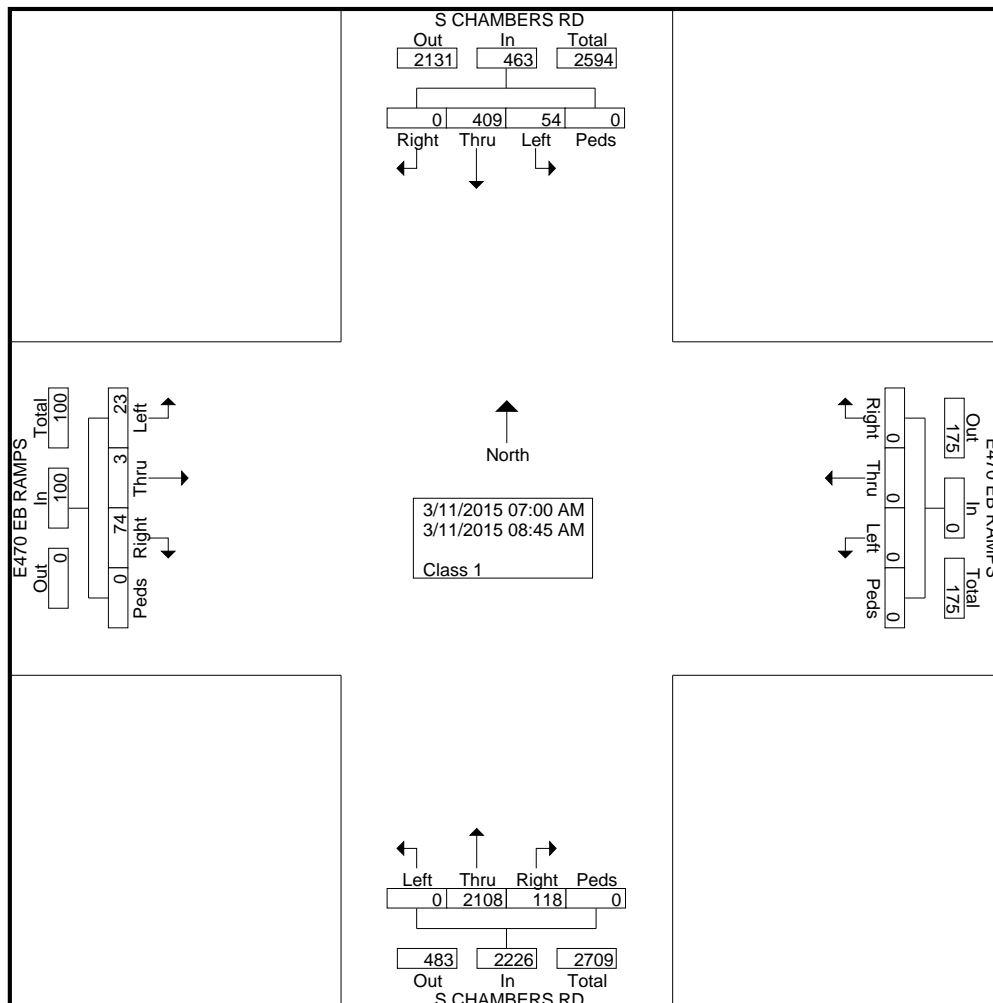
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| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 6 | 307 | 0 | 0 | 313 | 11 | 0 | 4 | 0 | 15 | 0 | 67 | 26 | 0 | 93 | 0 | 0 | 0 | 0 | 0 | 421 |
| 05:00 PM | 4 | 333 | 0 | 0 | 337 | 11 | 0 | 14 | 0 | 25 | 0 | 73 | 10 | 0 | 83 | 0 | 0 | 0 | 0 | 0 | 445 |
| 05:15 PM | 6 | 393 | 0 | 0 | 399 | 12 | 0 | 5 | 0 | 17 | 0 | 71 | 17 | 0 | 88 | 0 | 0 | 0 | 0 | 0 | 504 |
| 05:30 PM | 3 | 270 | 0 | 0 | 273 | 11 | 0 | 18 | 0 | 29 | 0 | 96 | 15 | 0 | 111 | 0 | 0 | 0 | 0 | 0 | 413 |
| Total Volume | 19 | 1303 | 0 | 0 | 1322 | 45 | 0 | 41 | 0 | 86 | 0 | 307 | 68 | 0 | 375 | 0 | 0 | 0 | 0 | 0 | 1783 |
| % App. Total | 1.4 | 98.6 | 0 | 0 | | 52.3 | 0 | 47.7 | 0 | | 0 | 81.9 | 18.1 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .792 | .829 | .000 | .000 | .828 | .938 | .000 | .569 | .000 | .741 | .000 | .799 | .654 | .000 | .845 | .000 | .000 | .000 | .000 | .000 | .884 |



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 Page No : 1

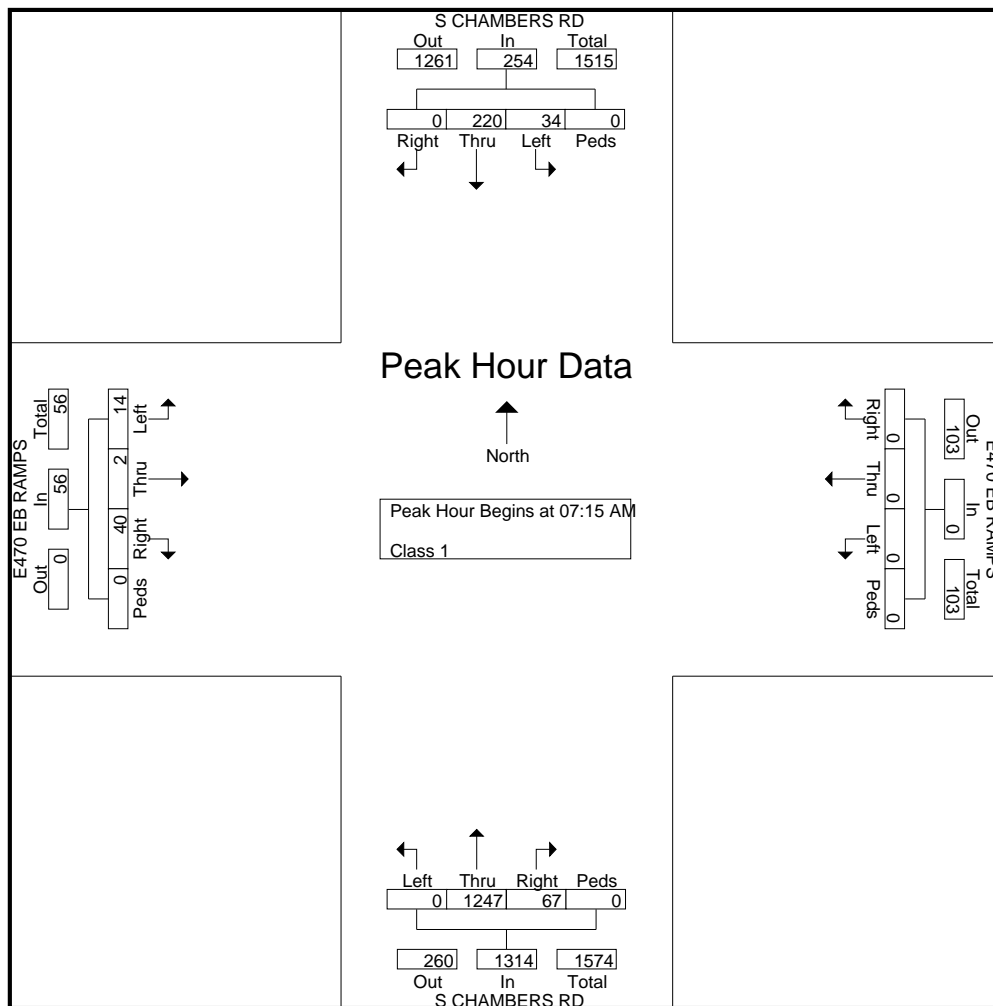
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| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 07:00 AM | 0 | 48 | 2 | 0 | 0 | 0 | 0 | 0 | 12 | 244 | 0 | 0 | 8 | 0 | 1 | 0 | 315 |
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| 07:30 AM | 0 | 53 | 7 | 0 | 0 | 0 | 0 | 0 | 20 | 355 | 0 | 0 | 6 | 0 | 3 | 0 | 444 |
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| 08:00 AM | 0 | 48 | 5 | 0 | 0 | 0 | 0 | 0 | 10 | 270 | 0 | 0 | 11 | 0 | 5 | 0 | 349 |
| 08:15 AM | 0 | 50 | 4 | 0 | 0 | 0 | 0 | 0 | 13 | 230 | 0 | 0 | 14 | 0 | 3 | 0 | 314 |
| 08:30 AM | 0 | 42 | 6 | 0 | 0 | 0 | 0 | 0 | 14 | 230 | 0 | 0 | 6 | 1 | 3 | 0 | 302 |
| 08:45 AM | 0 | 49 | 8 | 0 | 0 | 0 | 0 | 0 | 12 | 157 | 0 | 0 | 6 | 0 | 2 | 0 | 234 |
| Total | 0 | 189 | 23 | 0 | 0 | 0 | 0 | 0 | 49 | 887 | 0 | 0 | 37 | 1 | 13 | 0 | 1199 |
| Grand Total | 0 | 409 | 54 | 0 | 0 | 0 | 0 | 0 | 118 | 2108 | 0 | 0 | 74 | 3 | 23 | 0 | 2789 |
| Apprch % | 0 | 88.3 | 11.7 | 0 | 0 | 0 | 0 | 0 | 5.3 | 94.7 | 0 | 0 | 74 | 3 | 23 | 0 | |
| Total % | 0 | 14.7 | 1.9 | 0 | 0 | 0 | 0 | 0 | 4.2 | 75.6 | 0 | 0 | 2.7 | 0.1 | 0.8 | 0 | |



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 Page No : 2

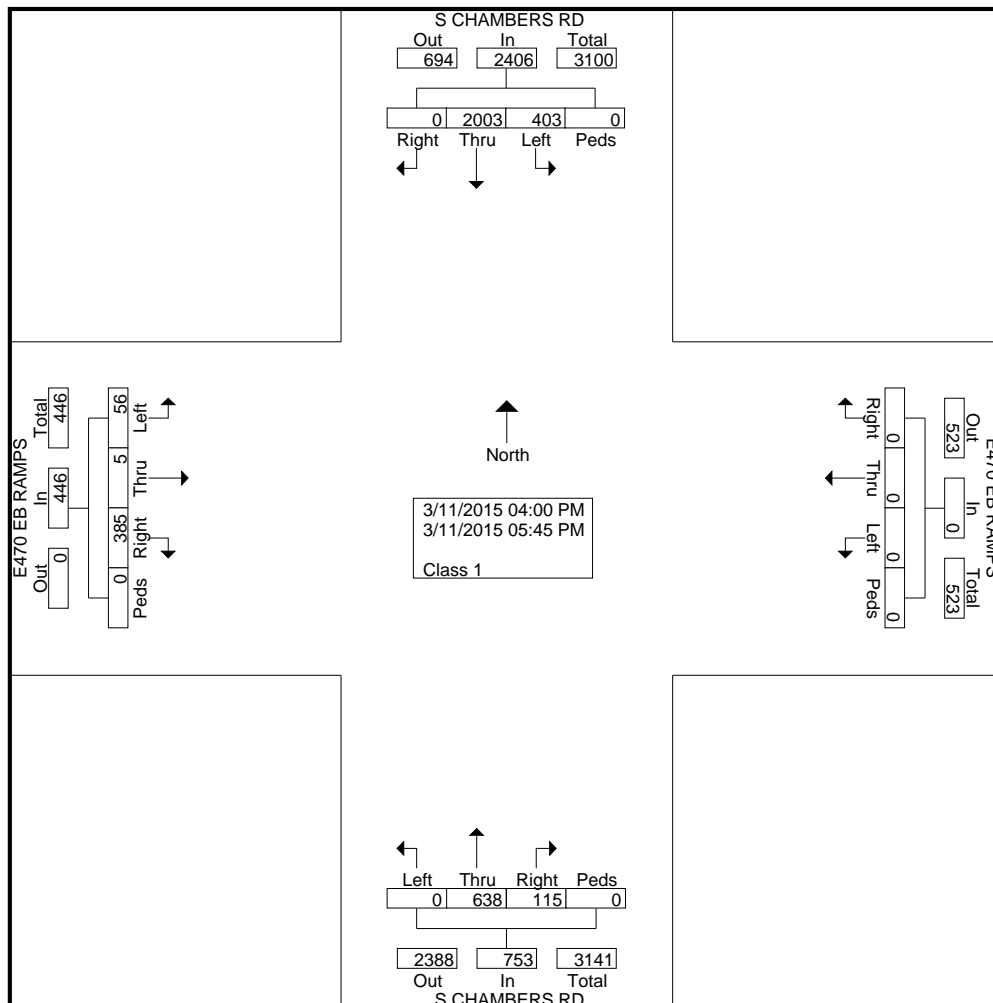
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| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 71 | 10 | 0 | 81 | 0 | 0 | 0 | 0 | 0 | 20 | 281 | 0 | 0 | 301 | 8 | 0 | 3 | 0 | 11 | 393 |
| 07:30 AM | 0 | 53 | 7 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 20 | 355 | 0 | 0 | 375 | 6 | 0 | 3 | 0 | 9 | 444 |
| 07:45 AM | 0 | 48 | 12 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 17 | 341 | 0 | 0 | 358 | 15 | 2 | 3 | 0 | 20 | 438 |
| 08:00 AM | 0 | 48 | 5 | 0 | 53 | 0 | 0 | 0 | 0 | 0 | 10 | 270 | 0 | 0 | 280 | 11 | 0 | 5 | 0 | 16 | 349 |
| Total Volume | 0 | 220 | 34 | 0 | 254 | 0 | 0 | 0 | 0 | 0 | 67 | 1247 | 0 | 0 | 1314 | 40 | 2 | 14 | 0 | 56 | 1624 |
| % App. Total | 0 | 86.6 | 13.4 | 0 | | 0 | 0 | 0 | 0 | | 5.1 | 94.9 | 0 | 0 | | 71.4 | 3.6 | 25 | 0 | | |
| PHF | .000 | .775 | .708 | .000 | .784 | .000 | .000 | .000 | .000 | .000 | .838 | .878 | .000 | .000 | .876 | .667 | .250 | .700 | .000 | .700 | .914 |



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 Page No : 1

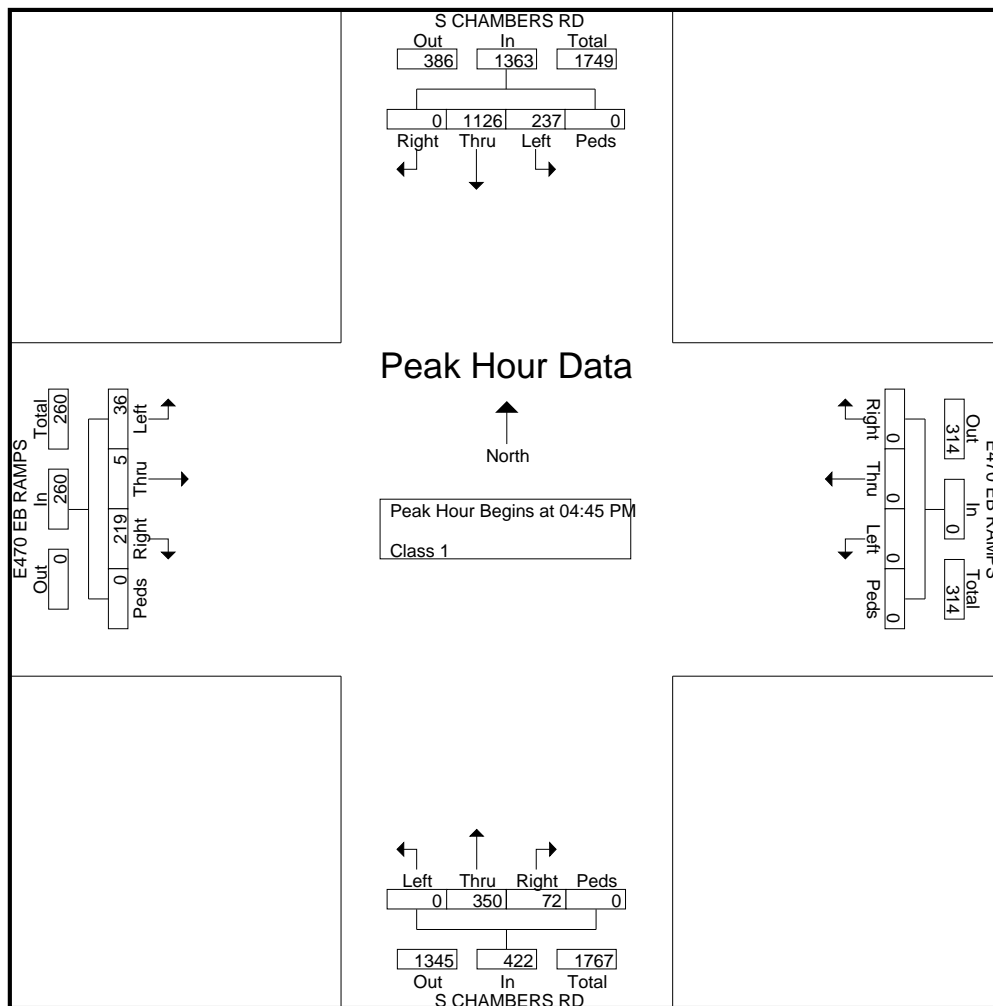
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| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 04:00 PM | 0 | 182 | 37 | 0 | 0 | 0 | 0 | 0 | 6 | 62 | 0 | 0 | 29 | 0 | 2 | 0 | 318 |
| 04:15 PM | 0 | 201 | 34 | 0 | 0 | 0 | 0 | 0 | 12 | 85 | 0 | 0 | 37 | 0 | 10 | 0 | 379 |
| 04:30 PM | 0 | 246 | 47 | 0 | 0 | 0 | 0 | 0 | 10 | 74 | 0 | 0 | 38 | 0 | 5 | 0 | 420 |
| 04:45 PM | 0 | 268 | 43 | 0 | 0 | 0 | 0 | 0 | 13 | 92 | 0 | 0 | 48 | 0 | 8 | 0 | 472 |
| Total | 0 | 897 | 161 | 0 | 0 | 0 | 0 | 0 | 41 | 313 | 0 | 0 | 152 | 0 | 25 | 0 | 1589 |
| 05:00 PM | 0 | 305 | 45 | 0 | 0 | 0 | 0 | 0 | 12 | 66 | 0 | 0 | 46 | 4 | 16 | 0 | 494 |
| 05:15 PM | 0 | 321 | 87 | 0 | 0 | 0 | 0 | 0 | 27 | 84 | 0 | 0 | 48 | 0 | 11 | 0 | 578 |
| 05:30 PM | 0 | 232 | 62 | 0 | 0 | 0 | 0 | 0 | 20 | 108 | 0 | 0 | 77 | 1 | 1 | 0 | 501 |
| 05:45 PM | 0 | 248 | 48 | 0 | 0 | 0 | 0 | 0 | 15 | 67 | 0 | 0 | 62 | 0 | 3 | 0 | 443 |
| Total | 0 | 1106 | 242 | 0 | 0 | 0 | 0 | 0 | 74 | 325 | 0 | 0 | 233 | 5 | 31 | 0 | 2016 |
| Grand Total | 0 | 2003 | 403 | 0 | 0 | 0 | 0 | 0 | 115 | 638 | 0 | 0 | 385 | 5 | 56 | 0 | 3605 |
| Apprch % | 0 | 83.3 | 16.7 | 0 | 0 | 0 | 0 | 0 | 15.3 | 84.7 | 0 | 0 | 86.3 | 1.1 | 12.6 | 0 | |
| Total % | 0 | 55.6 | 11.2 | 0 | 0 | 0 | 0 | 0 | 3.2 | 17.7 | 0 | 0 | 10.7 | 0.1 | 1.6 | 0 | |



File Name : #2 CHAMBERS&470EBRAMPSPM
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 Start Date : 3/11/2015
 Page No : 2

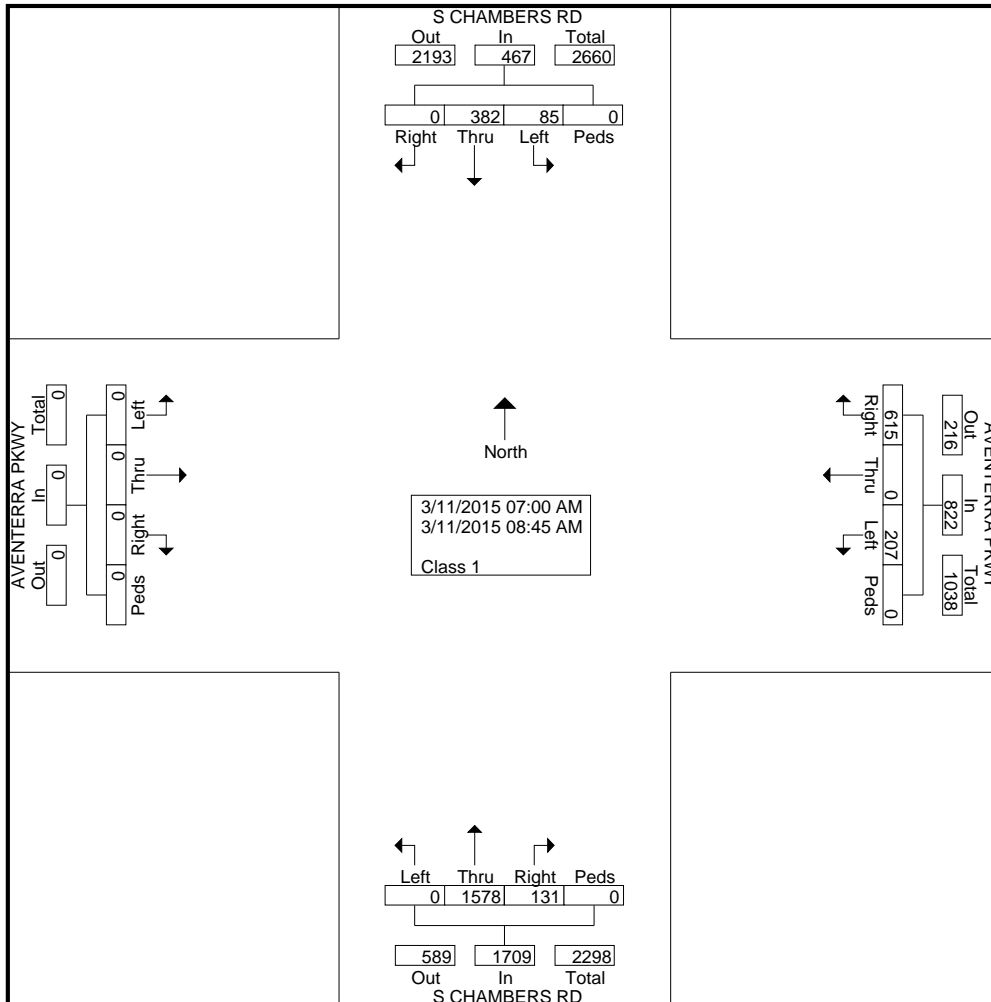
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| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 0 | 268 | 43 | 0 | 311 | 0 | 0 | 0 | 0 | 0 | 13 | 92 | 0 | 0 | 105 | 48 | 0 | 8 | 0 | 56 | 472 |
| 05:00 PM | 0 | 305 | 45 | 0 | 350 | 0 | 0 | 0 | 0 | 0 | 12 | 66 | 0 | 0 | 78 | 46 | 4 | 16 | 0 | 66 | 494 |
| 05:15 PM | 0 | 321 | 87 | 0 | 408 | 0 | 0 | 0 | 0 | 0 | 27 | 84 | 0 | 0 | 111 | 48 | 0 | 11 | 0 | 59 | 578 |
| 05:30 PM | 0 | 232 | 62 | 0 | 294 | 0 | 0 | 0 | 0 | 0 | 20 | 108 | 0 | 0 | 128 | 77 | 1 | 1 | 0 | 79 | 501 |
| Total Volume | 0 | 1126 | 237 | 0 | 1363 | 0 | 0 | 0 | 0 | 0 | 72 | 350 | 0 | 0 | 422 | 219 | 5 | 36 | 0 | 260 | 2045 |
| % App. Total | 0 | 82.6 | 17.4 | 0 | | 0 | 0 | 0 | 0 | | 17.1 | 82.9 | 0 | 0 | | 84.2 | 1.9 | 13.8 | 0 | | |
| PHF | .000 | .877 | .681 | .000 | .835 | .000 | .000 | .000 | .000 | .000 | .667 | .810 | .000 | .000 | .824 | .711 | .313 | .563 | .000 | .823 | .885 |



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 Start Date : 3/11/2015
 Page No : 1

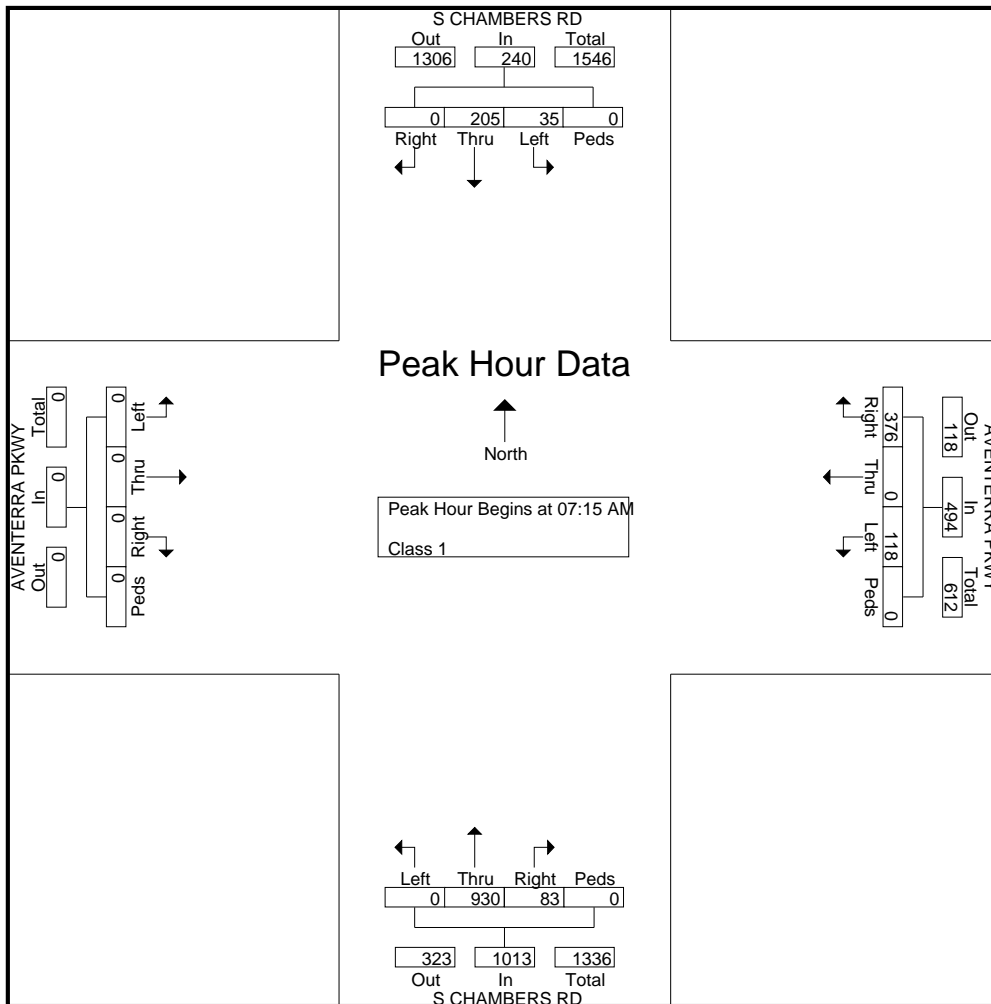
Groups Printed- Class 1

| Start Time | S CHAMBERS RD Southbound | | | | AVENTERRA PKWY Westbound | | | | S CHAMBERS RD Northbound | | | | AVENTERRA PKWY Eastbound | | | | Int. Total | |
|-------------|--------------------------|------|------|------|--------------------------|------|------|------|--------------------------|------|------|------|--------------------------|------|------|------|------------|------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | | |
| 07:00 AM | 0 | 50 | 9 | 0 | 48 | 0 | 24 | 0 | 21 | 198 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 350 |
| 07:15 AM | 0 | 68 | 8 | 0 | 75 | 0 | 34 | 0 | 39 | 229 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 453 |
| 07:30 AM | 0 | 46 | 7 | 0 | 94 | 0 | 21 | 0 | 25 | 276 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 469 |
| 07:45 AM | 0 | 43 | 11 | 0 | 114 | 0 | 30 | 0 | 10 | 246 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 454 |
| Total | 0 | 207 | 35 | 0 | 331 | 0 | 109 | 0 | 95 | 949 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1726 |
| 08:00 AM | 0 | 48 | 9 | 0 | 93 | 0 | 33 | 0 | 9 | 179 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 371 |
| 08:15 AM | 0 | 51 | 14 | 0 | 75 | 0 | 21 | 0 | 10 | 182 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 353 |
| 08:30 AM | 0 | 32 | 16 | 0 | 78 | 0 | 31 | 0 | 7 | 145 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 309 |
| 08:45 AM | 0 | 44 | 11 | 0 | 38 | 0 | 13 | 0 | 10 | 123 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 239 |
| Total | 0 | 175 | 50 | 0 | 284 | 0 | 98 | 0 | 36 | 629 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1272 |
| Grand Total | 0 | 382 | 85 | 0 | 615 | 0 | 207 | 0 | 131 | 1578 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2998 |
| Apprch % | 0 | 81.8 | 18.2 | 0 | 74.8 | 0 | 25.2 | 0 | 7.7 | 92.3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total % | 0 | 12.7 | 2.8 | 0 | 20.5 | 0 | 6.9 | 0 | 4.4 | 52.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |



File Name : #3 CHAMBERS&AVENTERRAAM
 Site Code : 00000000
 Start Date : 3/11/2015
 Page No : 2

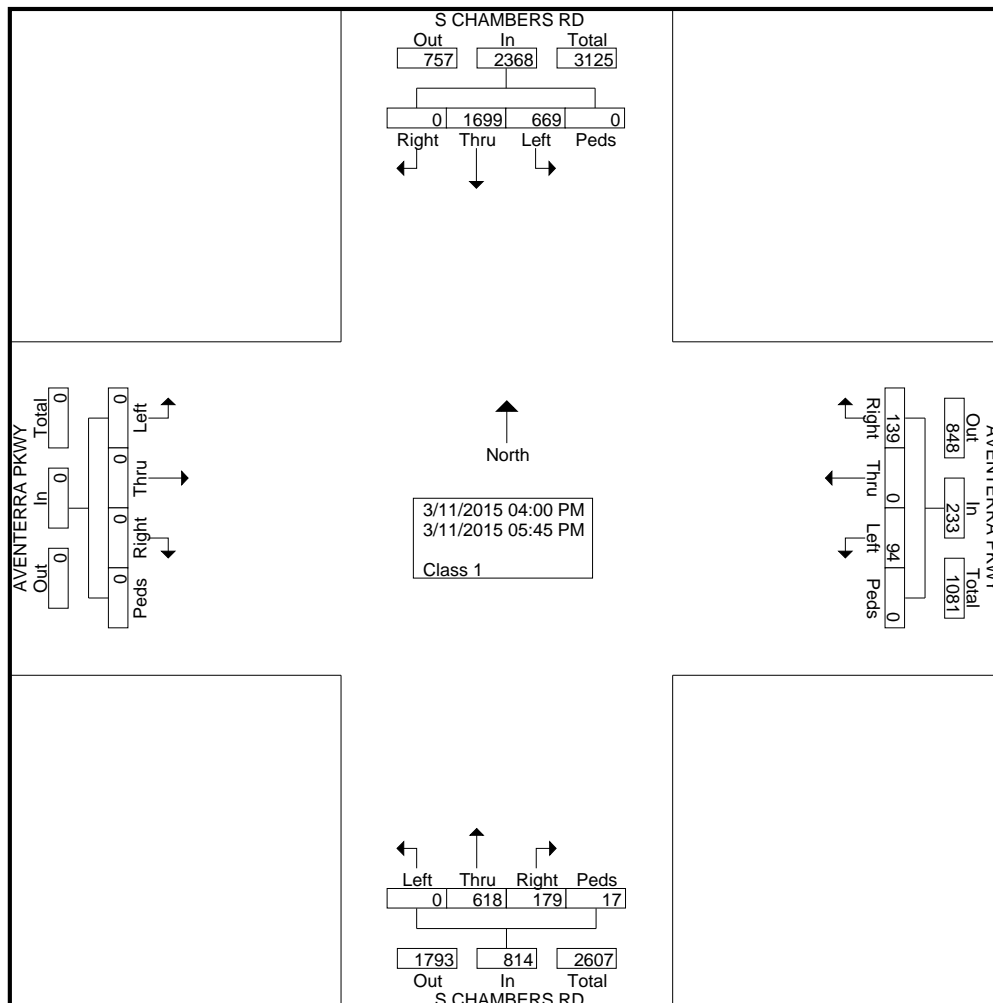
| Start Time | S CHAMBERS RD Southbound | | | | | AVENTERRA PKWY Westbound | | | | | S CHAMBERS RD Northbound | | | | | AVENTERRA PKWY Eastbound | | | | | Int. Total |
|---|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 68 | 8 | 0 | 76 | 75 | 0 | 34 | 0 | 109 | 39 | 229 | 0 | 0 | 268 | 0 | 0 | 0 | 0 | 0 | 453 |
| 07:30 AM | 0 | 46 | 7 | 0 | 53 | 94 | 0 | 21 | 0 | 115 | 25 | 276 | 0 | 0 | 301 | 0 | 0 | 0 | 0 | 0 | 469 |
| 07:45 AM | 0 | 43 | 11 | 0 | 54 | 114 | 0 | 30 | 0 | 144 | 10 | 246 | 0 | 0 | 256 | 0 | 0 | 0 | 0 | 0 | 454 |
| 08:00 AM | 0 | 48 | 9 | 0 | 57 | 93 | 0 | 33 | 0 | 126 | 9 | 179 | 0 | 0 | 188 | 0 | 0 | 0 | 0 | 0 | 371 |
| Total Volume | 0 | 205 | 35 | 0 | 240 | 376 | 0 | 118 | 0 | 494 | 83 | 930 | 0 | 0 | 1013 | 0 | 0 | 0 | 0 | 0 | 1747 |
| % App. Total | 0 | 85.4 | 14.6 | 0 | | 76.1 | 0 | 23.9 | 0 | | 8.2 | 91.8 | 0 | 0 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .754 | .795 | .000 | .789 | .825 | .000 | .868 | .000 | .858 | .532 | .842 | .000 | .000 | .841 | .000 | .000 | .000 | .000 | .000 | .931 |



File Name : #3 CHAMBERS&AVENTERRAPM
 Site Code : 00000000
 Start Date : 3/11/2015
 Page No : 1

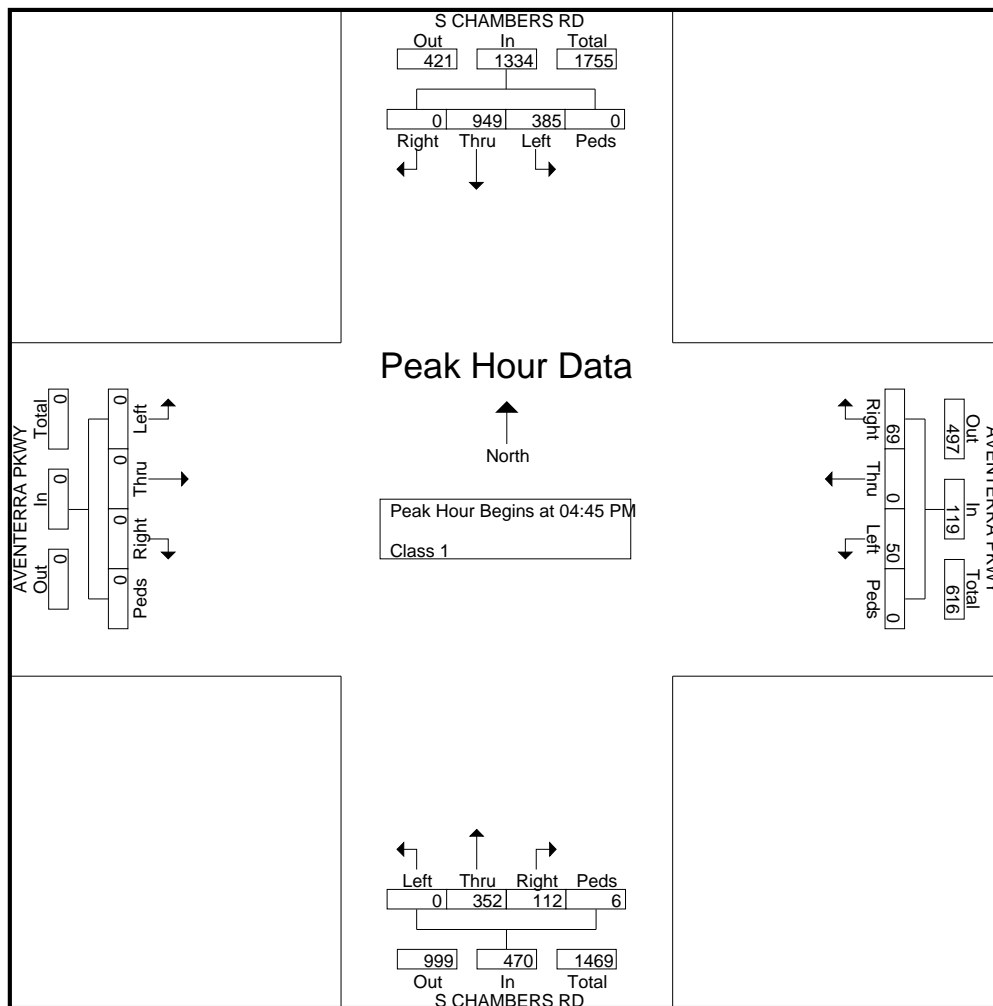
Groups Printed- Class 1

| Start Time | S CHAMBERS RD Southbound | | | | AVENTERRA PKWY Westbound | | | | S CHAMBERS RD Northbound | | | | AVENTERRA PKWY Eastbound | | | | Int. Total | |
|-------------|--------------------------|------|------|------|--------------------------|------|------|------|--------------------------|------|------|------|--------------------------|------|------|------|------------|------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | | |
| 04:00 PM | 0 | 159 | 56 | 0 | 19 | 0 | 14 | 0 | 14 | 53 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 323 |
| 04:15 PM | 0 | 189 | 58 | 0 | 22 | 0 | 11 | 0 | 22 | 78 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 380 |
| 04:30 PM | 0 | 194 | 80 | 0 | 15 | 0 | 12 | 0 | 11 | 69 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 384 |
| 04:45 PM | 0 | 228 | 83 | 0 | 19 | 0 | 16 | 0 | 27 | 82 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 461 |
| Total | 0 | 770 | 277 | 0 | 75 | 0 | 53 | 0 | 74 | 282 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 1548 |
| 05:00 PM | 0 | 248 | 99 | 0 | 17 | 0 | 10 | 0 | 27 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 461 |
| 05:15 PM | 0 | 237 | 116 | 0 | 17 | 0 | 14 | 0 | 28 | 98 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 510 |
| 05:30 PM | 0 | 236 | 87 | 0 | 16 | 0 | 10 | 0 | 30 | 112 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 491 |
| 05:45 PM | 0 | 208 | 90 | 0 | 14 | 0 | 7 | 0 | 20 | 66 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 405 |
| Total | 0 | 929 | 392 | 0 | 64 | 0 | 41 | 0 | 105 | 336 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1867 |
| Grand Total | 0 | 1699 | 669 | 0 | 139 | 0 | 94 | 0 | 179 | 618 | 0 | 17 | 0 | 0 | 0 | 0 | 0 | 3415 |
| Apprch % | 0 | 71.7 | 28.3 | 0 | 59.7 | 0 | 40.3 | 0 | 22 | 75.9 | 0 | 2.1 | 0 | 0 | 0 | 0 | 0 | |
| Total % | 0 | 49.8 | 19.6 | 0 | 4.1 | 0 | 2.8 | 0 | 5.2 | 18.1 | 0 | 0.5 | 0 | 0 | 0 | 0 | 0 | |



File Name : #3 CHAMBERS&AVENTERRAPM
 Site Code : 00000000
 Start Date : 3/11/2015
 Page No : 2

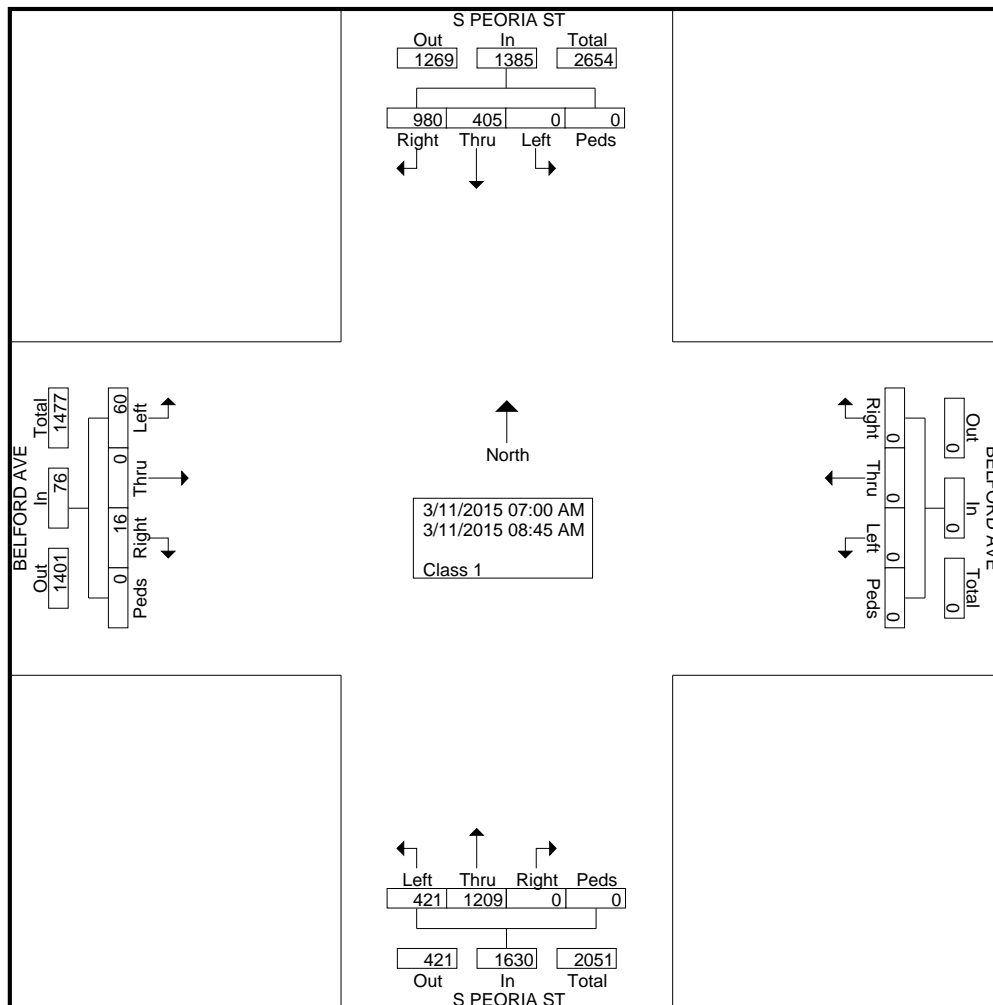
| Start Time | S CHAMBERS RD Southbound | | | | | AVENTERRA PKWY Westbound | | | | | S CHAMBERS RD Northbound | | | | | AVENTERRA PKWY Eastbound | | | | | Int. Total |
|---|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|--------------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:45 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:45 PM | 0 | 228 | 83 | 0 | 311 | 19 | 0 | 16 | 0 | 35 | 27 | 82 | 0 | 6 | 115 | 0 | 0 | 0 | 0 | 0 | 461 |
| 05:00 PM | 0 | 248 | 99 | 0 | 347 | 17 | 0 | 10 | 0 | 27 | 27 | 60 | 0 | 0 | 87 | 0 | 0 | 0 | 0 | 0 | 461 |
| 05:15 PM | 0 | 237 | 116 | 0 | 353 | 17 | 0 | 14 | 0 | 31 | 28 | 98 | 0 | 0 | 126 | 0 | 0 | 0 | 0 | 0 | 510 |
| 05:30 PM | 0 | 236 | 87 | 0 | 323 | 16 | 0 | 10 | 0 | 26 | 30 | 112 | 0 | 0 | 142 | 0 | 0 | 0 | 0 | 0 | 491 |
| Total Volume | 0 | 949 | 385 | 0 | 1334 | 69 | 0 | 50 | 0 | 119 | 112 | 352 | 0 | 6 | 470 | 0 | 0 | 0 | 0 | 0 | 1923 |
| % App. Total | 0 | 71.1 | 28.9 | 0 | | 58 | 0 | 42 | 0 | | 23.8 | 74.9 | 0 | 1.3 | | 0 | 0 | 0 | 0 | | |
| PHF | .000 | .957 | .830 | .000 | .945 | .908 | .000 | .781 | .000 | .850 | .933 | .786 | .000 | .250 | .827 | .000 | .000 | .000 | .000 | .000 | .943 |



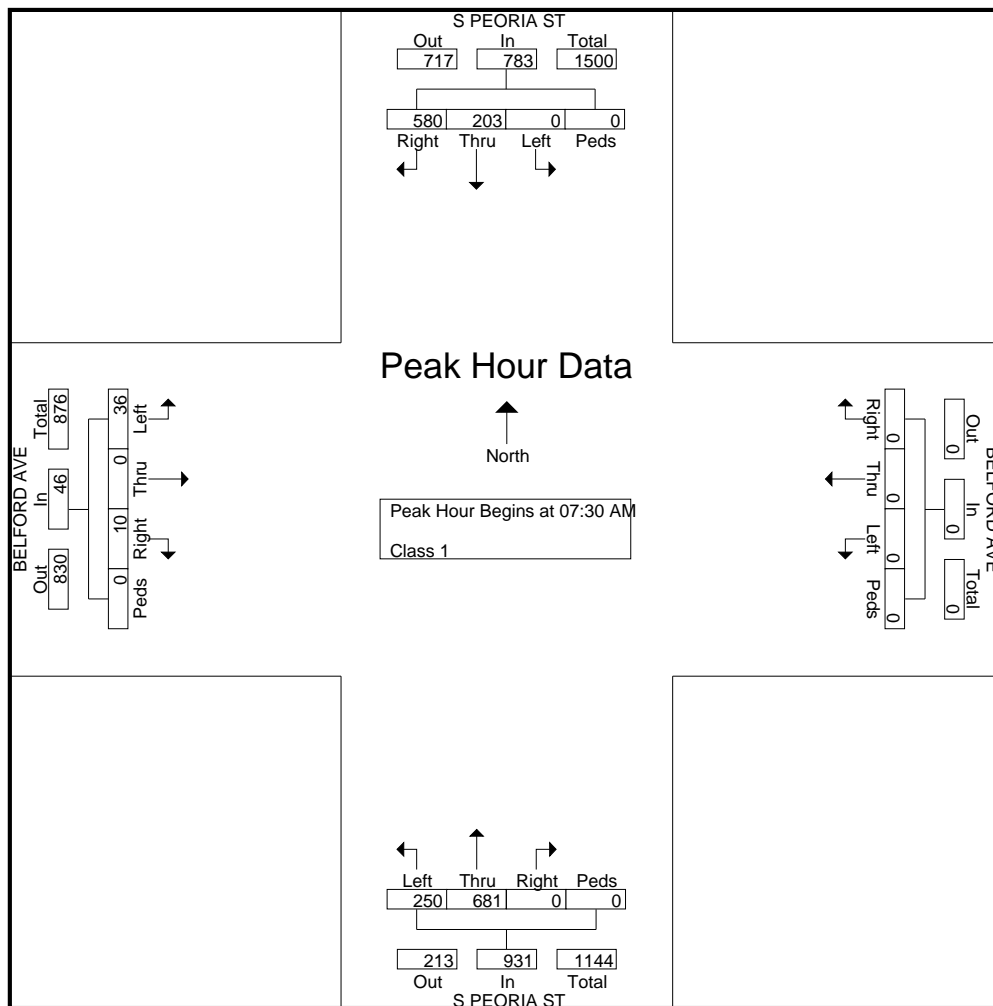
File Name : #4 PEORIA&BELFORDAM
 Site Code : 1
 Start Date : 3/11/2015
 Page No : 1

Groups Printed- Class 1

| Start Time | S PEORIA ST Southbound | | | | BELFORD AVE Westbound | | | | S PEORIA ST Northbound | | | | BELFORD AVE Eastbound | | | | Int. Total |
|-------------|------------------------|------|------|------|-----------------------|------|------|------|------------------------|------|------|------|-----------------------|------|------|------|------------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 07:00 AM | 72 | 38 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 132 | 43 | 0 | 0 | 0 | 5 | 0 | 290 |
| 07:15 AM | 120 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 140 | 35 | 0 | 2 | 0 | 8 | 0 | 367 |
| 07:30 AM | 90 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 187 | 59 | 0 | 7 | 0 | 9 | 0 | 414 |
| 07:45 AM | 193 | 46 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 57 | 0 | 0 | 0 | 6 | 0 | 460 |
| Total | 475 | 208 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 617 | 194 | 0 | 9 | 0 | 28 | 0 | 1531 |
| 08:00 AM | 164 | 51 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 178 | 75 | 0 | 2 | 0 | 13 | 0 | 483 |
| 08:15 AM | 133 | 44 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 59 | 0 | 1 | 0 | 8 | 0 | 403 |
| 08:30 AM | 124 | 42 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 153 | 46 | 0 | 1 | 0 | 8 | 0 | 374 |
| 08:45 AM | 84 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 103 | 47 | 0 | 3 | 0 | 3 | 0 | 300 |
| Total | 505 | 197 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 592 | 227 | 0 | 7 | 0 | 32 | 0 | 1560 |
| Grand Total | 980 | 405 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1209 | 421 | 0 | 16 | 0 | 60 | 0 | 3091 |
| Apprch % | 70.8 | 29.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 74.2 | 25.8 | 0 | 21.1 | 0 | 78.9 | 0 | |
| Total % | 31.7 | 13.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 39.1 | 13.6 | 0 | 0.5 | 0 | 1.9 | 0 | |

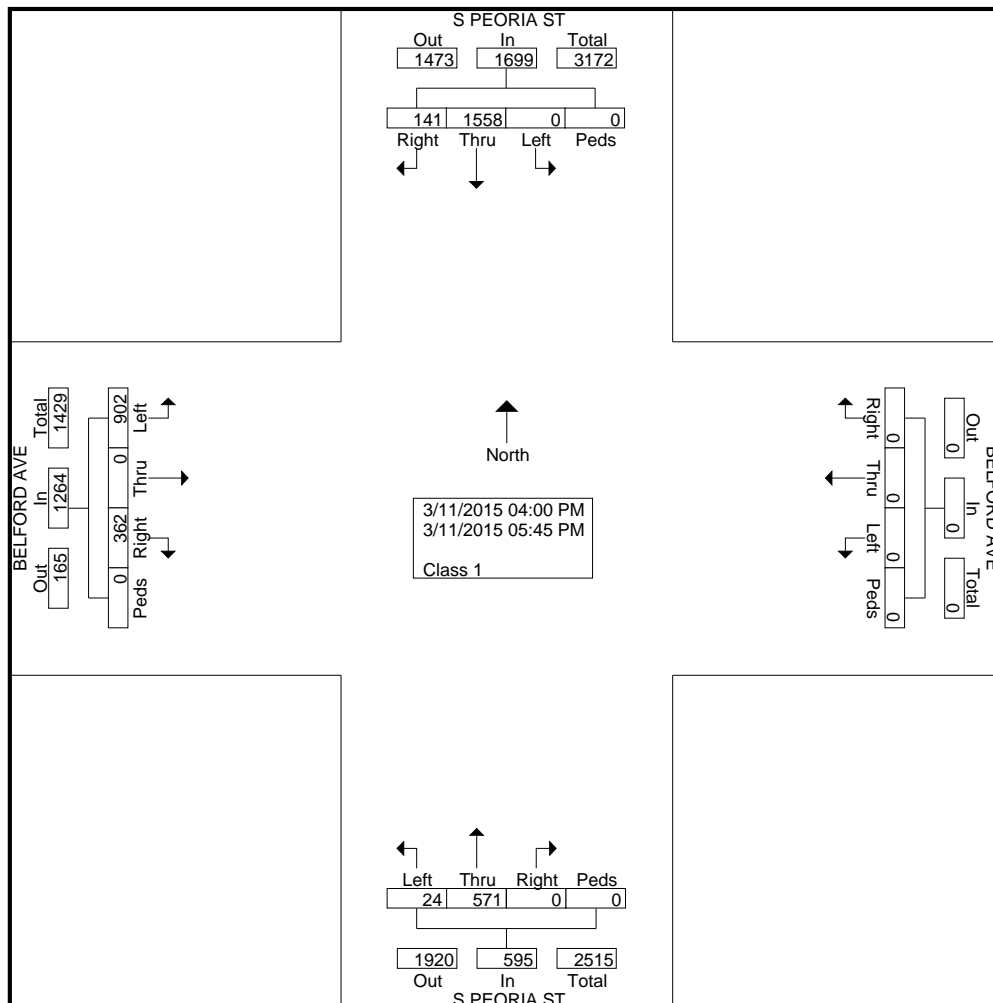


| Start Time | S PEORIA ST Southbound | | | | | BELFORD AVE Westbound | | | | | S PEORIA ST Northbound | | | | | BELFORD AVE Eastbound | | | | | Int. Total |
|---|------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 90 | 62 | 0 | 0 | 152 | 0 | 0 | 0 | 0 | 0 | 0 | 187 | 59 | 0 | 246 | 7 | 0 | 9 | 0 | 16 | 414 |
| 07:45 AM | 193 | 46 | 0 | 0 | 239 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 57 | 0 | 215 | 0 | 0 | 6 | 0 | 6 | 460 |
| 08:00 AM | 164 | 51 | 0 | 0 | 215 | 0 | 0 | 0 | 0 | 0 | 0 | 178 | 75 | 0 | 253 | 2 | 0 | 13 | 0 | 15 | 483 |
| 08:15 AM | 133 | 44 | 0 | 0 | 177 | 0 | 0 | 0 | 0 | 0 | 0 | 158 | 59 | 0 | 217 | 1 | 0 | 8 | 0 | 9 | 403 |
| Total Volume | 580 | 203 | 0 | 0 | 783 | 0 | 0 | 0 | 0 | 0 | 0 | 681 | 250 | 0 | 931 | 10 | 0 | 36 | 0 | 46 | 1760 |
| % App. Total | 74.1 | 25.9 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 73.1 | 26.9 | 0 | | 21.7 | 0 | 78.3 | 0 | | |
| PHF | .751 | .819 | .000 | .000 | .819 | .000 | .000 | .000 | .000 | .000 | .000 | .910 | .833 | .000 | .920 | .357 | .000 | .692 | .000 | .719 | .911 |

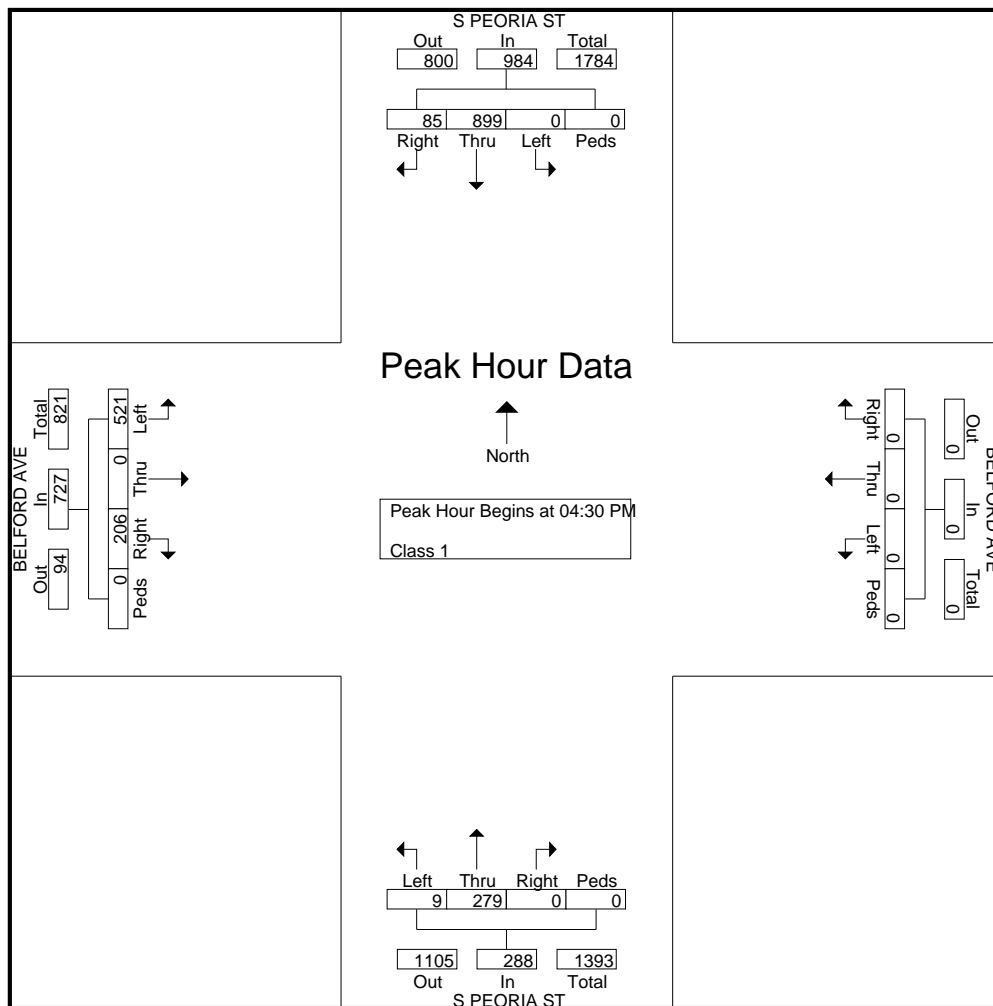


Groups Printed- Class 1

| Start Time | S PEORIA ST Southbound | | | | BELFORD AVE Westbound | | | | S PEORIA ST Northbound | | | | BELFORD AVE Eastbound | | | | Int. Total |
|-------------|------------------------|------|------|------|-----------------------|------|------|------|------------------------|------|------|------|-----------------------|------|------|------|------------|
| | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | Right | Thru | Left | Peds | |
| 04:00 PM | 9 | 155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 59 | 3 | 0 | 53 | 0 | 134 | 0 | 413 |
| 04:15 PM | 25 | 141 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 63 | 7 | 0 | 35 | 0 | 94 | 0 | 365 |
| 04:30 PM | 31 | 192 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 2 | 0 | 29 | 0 | 136 | 0 | 440 |
| 04:45 PM | 11 | 202 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 3 | 0 | 45 | 0 | 103 | 0 | 421 |
| Total | 76 | 690 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 229 | 15 | 0 | 162 | 0 | 467 | 0 | 1639 |
| 05:00 PM | 25 | 245 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 2 | 0 | 64 | 0 | 167 | 0 | 582 |
| 05:15 PM | 18 | 260 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 2 | 0 | 68 | 0 | 115 | 0 | 556 |
| 05:30 PM | 11 | 203 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 2 | 0 | 40 | 0 | 85 | 0 | 426 |
| 05:45 PM | 11 | 160 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 85 | 3 | 0 | 28 | 0 | 68 | 0 | 355 |
| Total | 65 | 868 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 342 | 9 | 0 | 200 | 0 | 435 | 0 | 1919 |
| Grand Total | 141 | 1558 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 571 | 24 | 0 | 362 | 0 | 902 | 0 | 3558 |
| Apprch % | 8.3 | 91.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 96 | 4 | 0 | 28.6 | 0 | 71.4 | 0 | |
| Total % | 4 | 43.8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0.7 | 0 | 10.2 | 0 | 25.4 | 0 | |



| Start Time | S PEORIA ST Southbound | | | | | BELFORD AVE Westbound | | | | | S PEORIA ST Northbound | | | | | BELFORD AVE Eastbound | | | | | Int. Total |
|---|------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 31 | 192 | 0 | 0 | 223 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 2 | 0 | 52 | 29 | 0 | 136 | 0 | 165 | 440 |
| 04:45 PM | 11 | 202 | 0 | 0 | 213 | 0 | 0 | 0 | 0 | 0 | 0 | 57 | 3 | 0 | 60 | 45 | 0 | 103 | 0 | 148 | 421 |
| 05:00 PM | 25 | 245 | 0 | 0 | 270 | 0 | 0 | 0 | 0 | 0 | 0 | 79 | 2 | 0 | 81 | 64 | 0 | 167 | 0 | 231 | 582 |
| 05:15 PM | 18 | 260 | 0 | 0 | 278 | 0 | 0 | 0 | 0 | 0 | 0 | 93 | 2 | 0 | 95 | 68 | 0 | 115 | 0 | 183 | 556 |
| Total Volume | 85 | 899 | 0 | 0 | 984 | 0 | 0 | 0 | 0 | 0 | 0 | 279 | 9 | 0 | 288 | 206 | 0 | 521 | 0 | 727 | 1999 |
| % App. Total | 8.6 | 91.4 | 0 | 0 | | 0 | 0 | 0 | 0 | | 0 | 96.9 | 3.1 | 0 | | 28.3 | 0 | 71.7 | 0 | | |
| PHF | .685 | .864 | .000 | .000 | .885 | .000 | .000 | .000 | .000 | .000 | .000 | .750 | .750 | .000 | .758 | .757 | .000 | .780 | .000 | .787 | .859 |





Site Code: 5
 Station ID: 5
 S CHAMBERS RD N/O AVENTURRA PKWY

| Start Time | 11-Mar-15 Wed | NB | SB | | | | | | | Total |
|------------|------------------|-------------|-------------|---|---|---|---|---|---|-------------|
| 12:00 AM | | 5 | 14 | | | | | | | 19 |
| 01:00 | | 3 | 10 | | | | | | | 13 |
| 02:00 | | 7 | 5 | | | | | | | 12 |
| 03:00 | | 4 | 1 | | | | | | | 5 |
| 04:00 | | 36 | 6 | | | | | | | 42 |
| 05:00 | | 126 | 21 | | | | | | | 147 |
| 06:00 | | 523 | 93 | | | | | | | 616 |
| 07:00 | | 1241 | 245 | | | | | | | 1486 |
| 08:00 | | 945 | 230 | | | | | | | 1175 |
| 09:00 | | 382 | 148 | | | | | | | 530 |
| 10:00 | | 208 | 183 | | | | | | | 391 |
| 11:00 | | 246 | 233 | | | | | | | 479 |
| 12:00 PM | | 278 | 250 | | | | | | | 528 |
| 01:00 | | 232 | 221 | | | | | | | 453 |
| 02:00 | | 242 | 306 | | | | | | | 548 |
| 03:00 | | 328 | 591 | | | | | | | 919 |
| 04:00 | | 351 | 1006 | | | | | | | 1357 |
| 05:00 | | 412 | 1327 | | | | | | | 1739 |
| 06:00 | | 259 | 699 | | | | | | | 958 |
| 07:00 | | 154 | 310 | | | | | | | 464 |
| 08:00 | | 97 | 161 | | | | | | | 258 |
| 09:00 | | 80 | 146 | | | | | | | 226 |
| 10:00 | | 25 | 56 | | | | | | | 81 |
| 11:00 | | 8 | 28 | | | | | | | 36 |
| Total | | 6192 | 6290 | | | | | | | 12482 |
| Percent | | 49.6% | 50.4% | | | | | | | |
| AM Peak | - | 07:00 | 07:00 | - | - | - | - | - | - | 07:00 |
| Vol. | - | 1241 | 245 | - | - | - | - | - | - | 1486 |
| PM Peak | - | 17:00 | 17:00 | - | - | - | - | - | - | 17:00 |
| Vol. | - | 412 | 1327 | - | - | - | - | - | - | 1739 |
| Total | | 6192 | 6290 | | | | | | | 12482 |
| Percent | | 49.6% | 50.4% | | | | | | | |
| ADT | | ADT 12,482 | AADT 12,482 | | | | | | | |




















APPENDIX B EXISTING CONDITIONS LOS WORKSHEETS**Existing LOS Summary Table**

| Intersection | Traffic Control | Existing LOS | |
|-------------------------|-----------------|--------------|--------------|
| | | AM Peak Hour | PM Peak Hour |
| Chambers/E-470 WB Ramps | Signal | A | A |
| Chambers/E-470 EB Ramps | Signal | A | A |
| Peoria/Belford | Signal | A | A |
| Chambers/Aventerra | Two-Way STOP | | |
| | EB LT | F | F |
| | WB RT | D | A |
| | SB LT | B | A |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Existing Conditions AM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 55 | 0 | 175 | 300 | 960 | 0 | 0 | 200 | 50 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 60 | 0 | 0 | 326 | 1043 | 0 | 0 | 217 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 78 | 82 | 70 | 1060 | 3068 | 0 | 0 | 2650 | 1186 |
| Arrive On Green | | | | 0.04 | 0.00 | 0.00 | 0.15 | 1.00 | 0.00 | 0.00 | 0.75 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 60 | 0 | 0 | 326 | 1043 | 0 | 0 | 217 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 3.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 3.0 | 0.0 | 0.0 | 3.7 | 0.0 | 0.0 | 0.0 | 1.5 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 78 | 82 | 70 | 1060 | 3068 | 0 | 0 | 2650 | 1186 |
| V/C Ratio(X) | | | | 0.77 | 0.00 | 0.00 | 0.31 | 0.34 | 0.00 | 0.00 | 0.08 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 493 | 517 | 440 | 1462 | 3068 | 0 | 0 | 2650 | 1186 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.89 | 0.89 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 42.6 | 0.0 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 | 3.0 | 0.0 |
| Incr Delay (d2), s/veh | | | | 14.3 | 0.0 | 0.0 | 0.1 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.8 | 0.0 | 0.0 | 1.6 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 56.9 | 0.0 | 0.0 | 1.5 | 0.3 | 0.0 | 0.0 | 3.1 | 0.0 |
| LnGrp LOS | | | | E | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 60 | | | 1369 | | | 217 | |
| Approach Delay, s/veh | | | | | 56.9 | | | 0.6 | | | 3.1 | |
| Approach LOS | | | | | E | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 82.0 | | | 10.6 | 71.4 | | 8.0 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 57.0 | | | 27.0 | 26.0 | | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 5.7 | 3.5 | | 5.0 | | | | |
| Green Ext Time (p_c), s | | 10.9 | | | 0.9 | 8.7 | | 0.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 2.9 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕↕ | ↗ | ↖ | ↕↕ | |
| Volume (veh/h) | 15 | 5 | 40 | 0 | 0 | 0 | 0 | 1245 | 65 | 35 | 220 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 16 | 5 | 43 | | | | 0 | 1353 | 71 | 38 | 239 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 55 | 17 | 64 | | | | 0 | 2829 | 1266 | 381 | 3083 | 0 |
| Arrive On Green | 0.04 | 0.04 | 0.04 | | | | 0.00 | 0.80 | 0.80 | 0.05 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1367 | 427 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 21 | 0 | 43 | | | | 0 | 1353 | 71 | 38 | 239 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1794 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 1.0 | 0.0 | 2.4 | | | | 0.0 | 11.2 | 0.8 | 0.3 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.0 | 0.0 | 2.4 | | | | 0.0 | 11.2 | 0.8 | 0.3 | 0.0 | 0.0 |
| Prop In Lane | 0.76 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 72 | 0 | 64 | | | | 0 | 2829 | 1266 | 381 | 3083 | 0 |
| V/C Ratio(X) | 0.29 | 0.00 | 0.68 | | | | 0.00 | 0.48 | 0.06 | 0.10 | 0.08 | 0.00 |
| Avail Cap(c_a), veh/h | 319 | 0 | 281 | | | | 0 | 2829 | 1266 | 412 | 3083 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 42.0 | 0.0 | 42.6 | | | | 0.0 | 2.9 | 1.9 | 2.1 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 2.2 | 0.0 | 11.8 | | | | 0.0 | 0.6 | 0.1 | 0.1 | 0.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.0 | 1.3 | | | | 0.0 | 5.5 | 0.4 | 0.2 | 0.0 | 0.0 |
| LnGrp Delay(d),s/veh | 44.2 | 0.0 | 54.5 | | | | 0.0 | 3.5 | 2.0 | 2.2 | 0.0 | 0.0 |
| LnGrp LOS | D | | D | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 64 | | | | | | 1424 | | | 277 | |
| Approach Delay, s/veh | | 51.1 | | | | | | 3.4 | | | 0.3 | |
| Approach LOS | | D | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 6.5 | 75.9 | | 7.6 | | 82.4 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 58.0 | | 16.0 | | 66.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 1.0 | 13.2 | | 4.4 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 18.4 | | 0.1 | | 20.4 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 4.7 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Intersection














Int Delay, s/veh 13.3

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 120 | 375 | 935 | 85 | 40 | 220 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 0 | - | 300 | 350 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 130 | 408 | 1016 | 92 | 43 | 239 |

| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 1223 | 508 | 0 |
| Stage 1 | 1016 | - | - |
| Stage 2 | 207 | - | - |
| Critical Hdwy | 6.84 | 6.94 | 4.14 |
| Critical Hdwy Stg 1 | 5.84 | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | 2.22 |
| Pot Cap-1 Maneuver | 172 | 510 | 678 |
| Stage 1 | 310 | - | - |
| Stage 2 | 807 | - | - |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 161 | 510 | 678 |
| Mov Cap-2 Maneuver | 161 | - | - |
| Stage 1 | 310 | - | - |
| Stage 2 | 756 | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 46.7 | 0 | 1.6 |
| HCM LOS | E | | |




















| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 161 | 510 | 678 | - |
| HCM Lane V/C Ratio | - | - | 0.81 | 0.799 | 0.064 | - |
| HCM Control Delay (s) | - | - | 84.5 | 34.6 | 10.7 | - |
| HCM Lane LOS | - | - | F | D | B | - |
| HCM 95th %tile Q(veh) | - | - | 5.3 | 7.5 | 0.2 | - |

| |  |  |  |  |  |  | | |
|------------------------------|---|---|---|---|---|---|---|---|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
| Lane Configurations |   |  |  |  |  |  | | |
| Volume (veh/h) | 35 | 10 | 250 | 680 | 205 | 580 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 38 | 11 | 272 | 739 | 223 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 108 | 50 | 1076 | 1639 | 1639 | 1393 | | |
| Arrive On Green | 0.03 | 0.03 | 0.88 | 0.88 | 0.88 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 1153 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 38 | 11 | 272 | 739 | 223 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1153 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 1.0 | 0.6 | 3.8 | 7.1 | 1.5 | 0.0 | | |
| Cycle Q Clear(g_c), s | 1.0 | 0.6 | 5.3 | 7.1 | 1.5 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 108 | 50 | 1076 | 1639 | 1639 | 1393 | | |
| V/C Ratio(X) | 0.35 | 0.22 | 0.25 | 0.45 | 0.14 | 0.00 | | |
| Avail Cap(c_a), veh/h | 612 | 281 | 1076 | 1639 | 1639 | 1393 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 42.7 | 42.5 | 1.1 | 1.1 | 0.7 | 0.0 | | |
| Incr Delay (d2), s/veh | 1.9 | 2.2 | 0.6 | 0.9 | 0.2 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 0.5 | 0.3 | 1.3 | 3.9 | 0.8 | 0.0 | | |
| LnGrp Delay(d),s/veh | 44.6 | 44.7 | 1.7 | 2.0 | 0.9 | 0.0 | | |
| LnGrp LOS | D | D | A | A | A | | | |
| Approach Vol, veh/h | 49 | | | 1011 | 223 | | | |
| Approach Delay, s/veh | 44.7 | | | 1.9 | 0.9 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | | 6 | | |
| Phs Duration (G+Y+Rc), s | | 83.2 | | 6.8 | | 83.2 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | |
| Max Green Setting (Gmax), s | | 66.0 | | 16.0 | | 66.0 | | |
| Max Q Clear Time (g_c+I1), s | | 9.1 | | 3.0 | | 3.5 | | |
| Green Ext Time (p_c), s | | 8.9 | | 0.1 | | 8.9 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 3.4 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Existing Conditions PM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 40 | 0 | 45 | 75 | 310 | 0 | 0 | 1320 | 20 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 43 | 0 | 0 | 82 | 337 | 0 | 0 | 1435 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 55 | 57 | 49 | 393 | 3116 | 0 | 0 | 2821 | 1262 |
| Arrive On Green | | | | 0.03 | 0.00 | 0.00 | 0.08 | 1.00 | 0.00 | 0.00 | 0.80 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 43 | 0 | 0 | 82 | 337 | 0 | 0 | 1435 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 2.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 2.2 | 0.0 | 0.0 | 0.6 | 0.0 | 0.0 | 0.0 | 12.5 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 55 | 57 | 49 | 393 | 3116 | 0 | 0 | 2821 | 1262 |
| V/C Ratio(X) | | | | 0.79 | 0.00 | 0.00 | 0.21 | 0.11 | 0.00 | 0.00 | 0.51 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 315 | 331 | 281 | 443 | 3116 | 0 | 0 | 2821 | 1262 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.99 | 0.99 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 43.3 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 3.1 | 0.0 |
| Incr Delay (d2), s/veh | | | | 21.4 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.7 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.4 | 0.0 | 0.0 | 0.4 | 0.0 | 0.0 | 0.0 | 6.2 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 64.8 | 0.0 | 0.0 | 2.6 | 0.1 | 0.0 | 0.0 | 3.8 | 0.0 |
| LnGrp LOS | | | | E | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 43 | | | 419 | | | 1435 | |
| Approach Delay, s/veh | | | | | 64.8 | | | 0.6 | | | 3.8 | |
| Approach LOS | | | | | E | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 83.2 | | | 7.5 | 75.7 | | 6.8 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 66.0 | | | 6.0 | 56.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 2.6 | 14.5 | | 4.2 | | | | |
| Green Ext Time (p_c), s | | 20.0 | | | 0.0 | 17.6 | | 0.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 4.4 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps

Existing Conditions PM
4/24/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕ | ↗ | ↖ | ↕ | |
| Volume (veh/h) | 35 | 5 | 220 | 0 | 0 | 0 | 0 | 350 | 70 | 235 | 1125 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 38 | 5 | 239 | | | | 0 | 380 | 76 | 255 | 1223 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 279 | 37 | 280 | | | | 0 | 2156 | 964 | 747 | 2599 | 0 |
| Arrive On Green | 0.18 | 0.18 | 0.18 | | | | 0.00 | 0.61 | 0.61 | 0.16 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1576 | 207 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 43 | 0 | 239 | | | | 0 | 380 | 76 | 255 | 1223 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1784 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 1.8 | 0.0 | 13.2 | | | | 0.0 | 4.2 | 1.8 | 4.8 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.8 | 0.0 | 13.2 | | | | 0.0 | 4.2 | 1.8 | 4.8 | 0.0 | 0.0 |
| Prop In Lane | 0.88 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 316 | 0 | 280 | | | | 0 | 2156 | 964 | 747 | 2599 | 0 |
| V/C Ratio(X) | 0.14 | 0.00 | 0.85 | | | | 0.00 | 0.18 | 0.08 | 0.34 | 0.47 | 0.00 |
| Avail Cap(c_a), veh/h | 515 | 0 | 457 | | | | 0 | 2156 | 964 | 919 | 2599 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 0.84 | 0.84 | 0.00 |
| Uniform Delay (d), s/veh | 31.2 | 0.0 | 35.9 | | | | 0.0 | 7.7 | 7.2 | 4.3 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 8.4 | | | | 0.0 | 0.2 | 0.2 | 0.2 | 0.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.9 | 0.0 | 6.4 | | | | 0.0 | 2.1 | 0.8 | 2.3 | 0.2 | 0.0 |
| LnGrp Delay(d),s/veh | 31.4 | 0.0 | 44.3 | | | | 0.0 | 7.9 | 7.4 | 4.5 | 0.5 | 0.0 |
| LnGrp LOS | C | | D | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 282 | | | | | | 456 | | | 1478 | |
| Approach Delay, s/veh | | 42.3 | | | | | | 7.8 | | | 1.2 | |
| Approach LOS | | D | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 11.3 | 58.8 | | 19.9 | | 70.1 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 10.0 | 36.0 | | 26.0 | | 56.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 10.8 | 6.2 | | 15.2 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.5 | 15.1 | | 0.8 | | 19.1 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 7.8 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Intersection

Int Delay, s/veh 10

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 50 | 70 | 350 | 110 | 390 | 955 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 0 | - | 300 | 350 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 54 | 76 | 380 | 120 | 424 | 1038 |

| Major/Minor | Minor1 | Minor2 | Major1 | Major2 | Major3 | Major4 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 1747 | 190 | 0 | 0 | 380 | 0 |
| Stage 1 | 380 | - | - | - | - | - |
| Stage 2 | 1367 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 77 | 820 | - | - | 1175 | - |
| Stage 1 | 661 | - | - | - | - | - |
| Stage 2 | 202 | - | - | - | - | - |
| Platoon blocked, % | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | ~ 49 | 820 | - | - | 1175 | - |
| Mov Cap-2 Maneuver | ~ 49 | - | - | - | - | - |
| Stage 1 | 661 | - | - | - | - | - |
| Stage 2 | 129 | - | - | - | - | - |

| Approach | WB | WB | NB | SB |
|----------------------|-------|----|----|-----|
| HCM Control Delay, s | 129.1 | | 0 | 2.8 |
| HCM LOS | F | | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 49 | 820 | 1175 | - |
| HCM Lane V/C Ratio | - | - | 1.109 | 0.093 | 0.361 | - |
| HCM Control Delay (s) | - | - | 296.1 | 9.8 | 9.8 | - |
| HCM Lane LOS | - | - | F | A | A | - |
| HCM 95th %tile Q(veh) | - | - | 4.9 | 0.3 | 1.7 | - |

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 520 | 205 | 10 | 280 | 900 | 85 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 565 | 223 | 11 | 304 | 978 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 667 | 307 | 312 | 1336 | 1336 | 1136 | | |
| Arrive On Green | 0.19 | 0.19 | 0.72 | 0.72 | 0.72 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 573 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 565 | 223 | 11 | 304 | 978 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 573 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 14.3 | 11.9 | 1.0 | 5.0 | 28.1 | 0.0 | | |
| Cycle Q Clear(g_c), s | 14.3 | 11.9 | 29.2 | 5.0 | 28.1 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 667 | 307 | 312 | 1336 | 1336 | 1136 | | |
| V/C Ratio(X) | 0.85 | 0.73 | 0.04 | 0.23 | 0.73 | 0.00 | | |
| Avail Cap(c_a), veh/h | 765 | 352 | 312 | 1336 | 1336 | 1136 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 35.0 | 34.1 | 16.2 | 4.3 | 7.6 | 0.0 | | |
| Incr Delay (d2), s/veh | 7.9 | 6.3 | 0.2 | 0.4 | 3.6 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.5 | 5.7 | 0.2 | 2.7 | 15.5 | 0.0 | | |
| LnGrp Delay(d),s/veh | 42.9 | 40.4 | 16.4 | 4.7 | 11.1 | 0.0 | | |
| LnGrp LOS | D | D | B | A | B | | | |
| Approach Vol, veh/h | 788 | | | 315 | 978 | | | |
| Approach Delay, s/veh | 42.2 | | | 5.1 | 11.1 | | | |
| Approach LOS | D | | | A | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | | 6 | | |
| Phs Duration (G+Y+Rc), s | | 68.6 | | 21.4 | | 68.6 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | |
| Max Green Setting (Gmax), s | | 62.0 | | 20.0 | | 62.0 | | |
| Max Q Clear Time (g_c+I1), s | | 31.2 | | 16.3 | | 30.1 | | |
| Green Ext Time (p_c), s | | 10.9 | | 1.2 | | 11.0 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 22.0 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

APPENDIX C MIXED USE INTERNAL CAPTURE

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|-------------------------|---------------|-------------------------|
| Project Name: | Chambers High Point TIA | Organization: | |
| Project Location: | Chambers Rd & E-470 | Performed By: | Felsburg Holt & Ullevig |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | AM Street Peak Hour | Date: | |

| Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | 710 | 176 | KSF | 234 | 206 | 28 |
| Retail | | | | 0 | | |
| Restaurant | 934 | 6 | KSF | 273 | 139 | 134 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | 220 | 230 | DU | 153 | 30 | 123 |
| Hotel | 310 | 150 | Rooms | 80 | 47 | 33 |
| All Other Land Uses ² | 110 / 912 | 55 / 5 | KSF | 106 | 74 | 32 |
| | | | | 846 | 496 | 350 |

| Table 2-A: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Retail | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Restaurant | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Cinema/Entertainment | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Residential | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Hotel | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| All Other Land Uses ² | 1.00 | 0% | 0% | 1.00 | 0% | 0% |

| Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Table 4-A: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 18 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 0 | 0 |
| Restaurant | 29 | 0 | | 0 | 2 | 2 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 2 | 0 | 25 | 0 | | 0 |
| Hotel | 6 | 0 | 3 | 0 | 0 | |

| Table 5-A: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 846 | 496 | 350 |
| Internal Capture Percentage | 21% | 18% | 25% |
| External Vehicle-Trips ⁵ | 672 | 409 | 263 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-A: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 18% | 64% |
| Retail | N/A | N/A |
| Restaurant | 33% | 25% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 7% | 22% |
| Hotel | 4% | 27% |

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

| | |
|-------------------------|-------------------------|
| Project Name: | Chambers High Point TIA |
| Analysis Period: | AM Street Peak Hour |

| Land Use | Table 7-A (D): Entering Trips | | | Table 7-A (O): Exiting Trips | | |
|----------------------|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 206 | 206 | 1.00 | 28 | 28 |
| Retail | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Restaurant | 1.00 | 139 | 139 | 1.00 | 134 | 134 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 30 | 30 | 1.00 | 123 | 123 |
| Hotel | 1.00 | 47 | 47 | 1.00 | 33 | 33 |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 8 | 18 | 0 | 0 | 0 |
| Retail | 0 | | 0 | 0 | 0 | 0 |
| Restaurant | 42 | 19 | | 0 | 5 | 4 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 2 | 1 | 25 | 0 | | 0 |
| Hotel | 25 | 5 | 3 | 0 | 0 | |

| Origin (From) | Destination (To) | | | | | |
|----------------------|------------------|--------|------------|----------------------|-------------|-------|
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 32 | 0 | 0 | 0 |
| Retail | 8 | | 70 | 0 | 1 | 0 |
| Restaurant | 29 | 0 | | 0 | 2 | 2 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 6 | 0 | 28 | 0 | | 0 |
| Hotel | 6 | 0 | 8 | 0 | 0 | |

| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|----------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 37 | 169 | 206 | 169 | 0 | 0 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 |
| Restaurant | 46 | 93 | 139 | 93 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 2 | 28 | 30 | 28 | 0 | 0 |
| Hotel | 2 | 45 | 47 | 45 | 0 | 0 |
| All Other Land Uses ³ | 0 | 74 | 74 | 74 | 0 | 0 |

| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
|----------------------------------|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 18 | 10 | 28 | 10 | 0 | 0 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 |
| Restaurant | 33 | 101 | 134 | 101 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 27 | 96 | 123 | 96 | 0 | 0 |
| Hotel | 9 | 24 | 33 | 24 | 0 | 0 |
| All Other Land Uses ³ | 0 | 32 | 32 | 32 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
²Person-Trips
³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator
*Indicates computation that has been rounded to the nearest whole number.

| NCHRP 684 Internal Trip Capture Estimation Tool | | | |
|---|---------------------|---------------|-------------------------|
| Project Name: | Chambers High Point | Organization: | |
| Project Location: | Chambers Rd & E-470 | Performed By: | Felsburg Holt & Ullevig |
| Scenario Description: | | Date: | |
| Analysis Year: | | Checked By: | |
| Analysis Period: | PM Street Peak Hour | Date: | |

| Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate) | | | | | | |
|--|---|----------|-------|--------------------------------------|----------|---------|
| Land Use | Development Data (For Information Only) | | | Estimated Vehicle-Trips ³ | | |
| | ITE LUCs ¹ | Quantity | Units | Total | Entering | Exiting |
| Office | 710 | 176 | KSF | 224 | 38 | 186 |
| Retail | | | | 0 | | |
| Restaurant | 934 | 6 | KSF | 196 | 102 | 94 |
| Cinema/Entertainment | | | | 0 | | |
| Residential | 220 | 230 | DU | 186 | 121 | 65 |
| Hotel | 310 | 150 | Rooms | 90 | 46 | 44 |
| All Other Land Uses ² | 110 / 912 | 55 / 5 | KSF | 171 | 67 | 104 |
| | | | | 867 | 374 | 493 |

| Table 2-P: Mode Split and Vehicle Occupancy Estimates | | | | | | |
|---|------------------------|-----------|-----------------|------------------------|-----------|-----------------|
| Land Use | Entering Trips | | | Exiting Trips | | |
| | Veh. Occ. ⁴ | % Transit | % Non-Motorized | Veh. Occ. ⁴ | % Transit | % Non-Motorized |
| Office | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Retail | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Restaurant | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Cinema/Entertainment | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Residential | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| Hotel | 1.00 | 0% | 0% | 1.00 | 0% | 0% |
| All Other Land Uses ² | 1.00 | 0% | 0% | 1.00 | 0% | 0% |

| Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | | | | | | |
| Restaurant | | | | | | |
| Cinema/Entertainment | | | | | | |
| Residential | | | | | | |
| Hotel | | | | | | |

| Table 4-P: Internal Person-Trip Origin-Destination Matrix* | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | | | | | |
| Retail | 0 | | 0 | 0 | 0 | 0 |
| Restaurant | 3 | 0 | | 0 | 17 | 7 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 3 | 0 | 14 | 0 | | 2 |
| Hotel | 0 | 0 | 5 | 0 | 0 | |

| Table 5-P: Computations Summary | | | |
|---|-------|----------|---------|
| | Total | Entering | Exiting |
| All Person-Trips | 867 | 374 | 493 |
| Internal Capture Percentage | 13% | 15% | 12% |
| External Vehicle-Trips ⁵ | 753 | 317 | 436 |
| External Transit-Trips ⁶ | 0 | 0 | 0 |
| External Non-Motorized Trips ⁶ | 0 | 0 | 0 |

| Table 6-P: Internal Trip Capture Percentages by Land Use | | |
|--|----------------|---------------|
| Land Use | Entering Trips | Exiting Trips |
| Office | 16% | 3% |
| Retail | N/A | N/A |
| Restaurant | 21% | 29% |
| Cinema/Entertainment | N/A | N/A |
| Residential | 17% | 29% |
| Hotel | 20% | 11% |

¹Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

²Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

³Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

⁴Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made.

⁵Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

⁶Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

| | |
|-------------------------|---------------------|
| Project Name: | Chambers High Point |
| Analysis Period: | PM Street Peak Hour |

| Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends | | | | | | |
|--|-------------------------------|---------------|---------------|------------------------------|---------------|---------------|
| Land Use | Table 7-P (D): Entering Trips | | | Table 7-P (O): Exiting Trips | | |
| | Veh. Occ. | Vehicle-Trips | Person-Trips* | Veh. Occ. | Vehicle-Trips | Person-Trips* |
| Office | 1.00 | 38 | 38 | 1.00 | 186 | 186 |
| Retail | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Restaurant | 1.00 | 102 | 102 | 1.00 | 94 | 94 |
| Cinema/Entertainment | 1.00 | 0 | 0 | 1.00 | 0 | 0 |
| Residential | 1.00 | 121 | 121 | 1.00 | 65 | 65 |
| Hotel | 1.00 | 46 | 46 | 1.00 | 44 | 44 |

| Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin) | | | | | | |
|--|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 37 | 7 | 0 | 4 | 0 |
| Retail | 0 | | 0 | 0 | 0 | 0 |
| Restaurant | 3 | 39 | | 8 | 17 | 7 |
| Cinema/Entertainment | 0 | 0 | 0 | | 0 | 0 |
| Residential | 3 | 27 | 14 | 0 | | 2 |
| Hotel | 0 | 7 | 30 | 0 | 1 | |

| Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination) | | | | | | |
|---|------------------|--------|------------|----------------------|-------------|-------|
| Origin (From) | Destination (To) | | | | | |
| | Office | Retail | Restaurant | Cinema/Entertainment | Residential | Hotel |
| Office | | 0 | 2 | 0 | 5 | 0 |
| Retail | 12 | | 30 | 0 | 56 | 8 |
| Restaurant | 11 | 0 | | 0 | 19 | 33 |
| Cinema/Entertainment | 2 | 0 | 3 | | 5 | 0 |
| Residential | 22 | 0 | 14 | 0 | | 6 |
| Hotel | 0 | 0 | 5 | 0 | 0 | |

| Table 9-P (D): Internal and External Trips Summary (Entering Trips) | | | | | | |
|---|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Destination Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 6 | 32 | 38 | 32 | 0 | 0 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 |
| Restaurant | 21 | 81 | 102 | 81 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 21 | 100 | 121 | 100 | 0 | 0 |
| Hotel | 9 | 37 | 46 | 37 | 0 | 0 |
| All Other Land Uses ³ | 0 | 67 | 67 | 67 | 0 | 0 |

| Table 9-P (O): Internal and External Trips Summary (Exiting Trips) | | | | | | |
|--|-----------------------|----------|-------|-------------------------|----------------------|----------------------------|
| Origin Land Use | Person-Trip Estimates | | | External Trips by Mode* | | |
| | Internal | External | Total | Vehicles ¹ | Transit ² | Non-Motorized ² |
| Office | 6 | 180 | 186 | 180 | 0 | 0 |
| Retail | 0 | 0 | 0 | 0 | 0 | 0 |
| Restaurant | 27 | 67 | 94 | 67 | 0 | 0 |
| Cinema/Entertainment | 0 | 0 | 0 | 0 | 0 | 0 |
| Residential | 19 | 46 | 65 | 46 | 0 | 0 |
| Hotel | 5 | 39 | 44 | 39 | 0 | 0 |
| All Other Land Uses ³ | 0 | 104 | 104 | 104 | 0 | 0 |

¹Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

²Person-Trips

³Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

APPENDIX D BACKGROUND TRAFFIC LOS WORKSHEETS




















Background LOS Summary Table

| Intersection | Traffic Control | 2016 | | 2035 | |
|-------------------------|-----------------|------|----|------|----|
| | | AM | PM | AM | PM |
| Chambers/E-470 WB Ramps | Signal | A | A | B | D |
| Chambers/E-470 EB Ramps | Signal | A | A | C | A |
| Peoria/Belford | Signal | A | C | D | E |
| Chambers/Aventerra | Two-Way STOP | | | | |
| | EB LT | F | F | | |
| | WB RT | E | B | | |
| | SB LT | B | B | | |
| | Signal | | | C | D |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Short Range Future Background AM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 60 | 0 | 190 | 320 | 1020 | 0 | 0 | 215 | 55 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 65 | 0 | 0 | 348 | 1109 | 0 | 0 | 234 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 85 | 89 | 76 | 1044 | 3055 | 0 | 0 | 2615 | 1170 |
| Arrive On Green | | | | 0.05 | 0.00 | 0.00 | 0.16 | 1.00 | 0.00 | 0.00 | 0.74 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 65 | 0 | 0 | 348 | 1109 | 0 | 0 | 234 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 3.3 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 3.3 | 0.0 | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 1.7 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 85 | 89 | 76 | 1044 | 3055 | 0 | 0 | 2615 | 1170 |
| V/C Ratio(X) | | | | 0.76 | 0.00 | 0.00 | 0.33 | 0.36 | 0.00 | 0.00 | 0.09 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 493 | 517 | 440 | 1435 | 3055 | 0 | 0 | 2615 | 1170 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.85 | 0.85 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 42.3 | 0.0 | 0.0 | 1.4 | 0.0 | 0.0 | 0.0 | 3.3 | 0.0 |
| Incr Delay (d2), s/veh | | | | 13.2 | 0.0 | 0.0 | 0.2 | 0.3 | 0.0 | 0.0 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.9 | 0.0 | 0.0 | 1.9 | 0.1 | 0.0 | 0.0 | 0.8 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 55.5 | 0.0 | 0.0 | 1.6 | 0.3 | 0.0 | 0.0 | 3.4 | 0.0 |
| LnGrp LOS | | | | E | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 65 | | | 1457 | | | 234 | |
| Approach Delay, s/veh | | | | | 55.5 | | | 0.6 | | | 3.4 | |
| Approach LOS | | | | | E | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 81.7 | | | 11.2 | 70.5 | | 8.3 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 57.0 | | | 27.0 | 26.0 | | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 6.2 | 3.7 | | 5.3 | | | | |
| Green Ext Time (p_c), s | | 12.0 | | | 1.0 | 9.3 | | 0.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 3.0 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps

Short Range Future Background AM

4/24/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕ | ↗ | ↖ | ↕ | |
| Volume (veh/h) | 20 | 5 | 45 | 0 | 0 | 0 | 0 | 1320 | 70 | 40 | 235 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 22 | 5 | 49 | | | | 0 | 1435 | 76 | 43 | 255 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 67 | 15 | 73 | | | | 0 | 2800 | 1253 | 356 | 3061 | 0 |
| Arrive On Green | 0.05 | 0.05 | 0.05 | | | | 0.00 | 0.79 | 0.79 | 0.06 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1458 | 331 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 27 | 0 | 49 | | | | 0 | 1435 | 76 | 43 | 255 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1790 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 1.3 | 0.0 | 2.7 | | | | 0.0 | 12.8 | 0.9 | 0.3 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.3 | 0.0 | 2.7 | | | | 0.0 | 12.8 | 0.9 | 0.3 | 0.0 | 0.0 |
| Prop In Lane | 0.81 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 83 | 0 | 73 | | | | 0 | 2800 | 1253 | 356 | 3061 | 0 |
| V/C Ratio(X) | 0.33 | 0.00 | 0.67 | | | | 0.00 | 0.51 | 0.06 | 0.12 | 0.08 | 0.00 |
| Avail Cap(c_a), veh/h | 318 | 0 | 281 | | | | 0 | 2800 | 1253 | 383 | 3061 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 0.99 | 0.99 | 0.00 |
| Uniform Delay (d), s/veh | 41.6 | 0.0 | 42.2 | | | | 0.0 | 3.3 | 2.1 | 2.5 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 2.3 | 0.0 | 10.1 | | | | 0.0 | 0.7 | 0.1 | 0.1 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.7 | 0.0 | 1.4 | | | | 0.0 | 6.2 | 0.4 | 0.2 | 0.0 | 0.0 |
| LnGrp Delay(d),s/veh | 43.8 | 0.0 | 52.4 | | | | 0.0 | 4.0 | 2.2 | 2.6 | 0.1 | 0.0 |
| LnGrp LOS | D | | D | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 76 | | | | | | 1511 | | | 298 | |
| Approach Delay, s/veh | | 49.3 | | | | | | 3.9 | | | 0.4 | |
| Approach LOS | | D | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 6.6 | 75.2 | | 8.2 | | 81.8 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 58.0 | | 16.0 | | 66.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 12.3 | 14.8 | | 4.7 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 19.9 | | 0.1 | | 22.8 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 5.2 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Intersection

Int Delay, s/veh 20

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 130 | 400 | 990 | 90 | 45 | 235 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 0 | - | 300 | 350 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 141 | 435 | 1076 | 98 | 49 | 255 |

| Major/Minor | Minor1 | Minor2 | Major1 | Major2 | Major3 | Major4 |
|----------------------|--------|--------|--------|--------|--------|--------|
| Conflicting Flow All | 1302 | 538 | 0 | 0 | 1076 | 0 |
| Stage 1 | 1076 | - | - | - | - | - |
| Stage 2 | 226 | - | - | - | - | - |
| Critical Hdwy | 6.84 | 6.94 | - | - | 4.14 | - |
| Critical Hdwy Stg 1 | 5.84 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.84 | - | - | - | - | - |
| Follow-up Hdwy | 3.52 | 3.32 | - | - | 2.22 | - |
| Pot Cap-1 Maneuver | 152 | 488 | - | - | 644 | - |
| Stage 1 | 289 | - | - | - | - | - |
| Stage 2 | 790 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | - | - |
| Mov Cap-1 Maneuver | ~ 140 | 488 | - | - | 644 | - |
| Mov Cap-2 Maneuver | ~ 140 | - | - | - | - | - |
| Stage 1 | 289 | - | - | - | - | - |
| Stage 2 | 730 | - | - | - | - | - |

| Approach | WB | NB | SB |
|----------------------|------|----|-----|
| HCM Control Delay, s | 70.4 | 0 | 1.8 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|-------|-------|-------|-----|
| Capacity (veh/h) | - | - | 140 | 488 | 644 | - |
| HCM Lane V/C Ratio | - | - | 1.009 | 0.891 | 0.076 | - |
| HCM Control Delay (s) | - | - | 140.9 | 47.5 | 11 | - |
| HCM Lane LOS | - | - | F | E | B | - |
| HCM 95th %tile Q(veh) | - | - | 7.4 | 9.9 | 0.2 | - |

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon






















| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 40 | 10 | 260 | 700 | 215 | 600 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 43 | 11 | 283 | 761 | 234 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 113 | 52 | 1063 | 1636 | 1636 | 1390 | | |
| Arrive On Green | 0.03 | 0.03 | 0.88 | 0.88 | 0.88 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 1142 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 43 | 11 | 283 | 761 | 234 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1142 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 1.1 | 0.6 | 4.1 | 7.6 | 1.6 | 0.0 | | |
| Cycle Q Clear(g_c), s | 1.1 | 0.6 | 5.7 | 7.6 | 1.6 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 113 | 52 | 1063 | 1636 | 1636 | 1390 | | |
| V/C Ratio(X) | 0.38 | 0.21 | 0.27 | 0.47 | 0.14 | 0.00 | | |
| Avail Cap(c_a), veh/h | 612 | 281 | 1063 | 1636 | 1636 | 1390 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 42.6 | 42.4 | 1.2 | 1.1 | 0.8 | 0.0 | | |
| Incr Delay (d2), s/veh | 2.1 | 2.0 | 0.6 | 1.0 | 0.2 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.3 | 1.4 | 4.0 | 0.9 | 0.0 | | |
| LnGrp Delay(d),s/veh | 44.7 | 44.4 | 1.8 | 2.1 | 0.9 | 0.0 | | |
| LnGrp LOS | D | D | A | A | A | | | |
| Approach Vol, veh/h | 54 | | | 1044 | 234 | | | |
| Approach Delay, s/veh | 44.6 | | | 2.0 | 0.9 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | | 6 | | |
| Phs Duration (G+Y+Rc), s | | 83.0 | | 7.0 | | 83.0 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | |
| Max Green Setting (Gmax), s | | 66.0 | | 16.0 | | 66.0 | | |
| Max Q Clear Time (g_c+I1), s | | 9.6 | | 3.1 | | 3.6 | | |
| Green Ext Time (p_c), s | | 9.4 | | 0.1 | | 9.5 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 3.5 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Short Range Future Background PM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 45 | 0 | 50 | 80 | 335 | 0 | 0 | 1400 | 25 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 49 | 0 | 0 | 87 | 364 | 0 | 0 | 1522 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 63 | 66 | 56 | 366 | 3098 | 0 | 0 | 2802 | 1253 |
| Arrive On Green | | | | 0.04 | 0.00 | 0.00 | 0.08 | 1.00 | 0.00 | 0.00 | 0.79 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 49 | 0 | 0 | 87 | 364 | 0 | 0 | 1522 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 2.5 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 2.5 | 0.0 | 0.0 | 0.7 | 0.0 | 0.0 | 0.0 | 14.2 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 63 | 66 | 56 | 366 | 3098 | 0 | 0 | 2802 | 1253 |
| V/C Ratio(X) | | | | 0.77 | 0.00 | 0.00 | 0.24 | 0.12 | 0.00 | 0.00 | 0.54 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 493 | 517 | 440 | 829 | 3098 | 0 | 0 | 2802 | 1253 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.99 | 0.99 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 43.0 | 0.0 | 0.0 | 2.8 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 |
| Incr Delay (d2), s/veh | | | | 18.0 | 0.0 | 0.0 | 0.3 | 0.1 | 0.0 | 0.0 | 0.8 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 1.5 | 0.0 | 0.0 | 0.5 | 0.0 | 0.0 | 0.0 | 7.1 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 61.0 | 0.0 | 0.0 | 3.1 | 0.1 | 0.0 | 0.0 | 4.2 | 0.0 |
| LnGrp LOS | | | | E | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 49 | | | 451 | | | 1522 | |
| Approach Delay, s/veh | | | | | 61.0 | | | 0.7 | | | 4.2 | |
| Approach LOS | | | | | E | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 82.8 | | | 7.5 | 75.2 | | 7.2 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 57.0 | | | 27.0 | 26.0 | | 25.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 2.7 | 16.2 | | 4.5 | | | | |
| Green Ext Time (p_c), s | | 21.6 | | | 0.2 | 7.5 | | 0.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 4.8 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps

Short Range Future Background PM

4/24/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕ | ↗ | ↖ | ↕ | |
| Volume (veh/h) | 40 | 5 | 235 | 0 | 0 | 0 | 0 | 375 | 75 | 250 | 1195 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 43 | 5 | 255 | | | | 0 | 408 | 82 | 272 | 1299 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 288 | 34 | 286 | | | | 0 | 2271 | 1016 | 696 | 2585 | 0 |
| Arrive On Green | 0.18 | 0.18 | 0.18 | | | | 0.00 | 0.64 | 0.64 | 0.09 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1597 | 186 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 48 | 0 | 255 | | | | 0 | 408 | 82 | 272 | 1299 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1783 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 2.0 | 0.0 | 14.2 | | | | 0.0 | 4.2 | 1.8 | 4.0 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 2.0 | 0.0 | 14.2 | | | | 0.0 | 4.2 | 1.8 | 4.0 | 0.0 | 0.0 |
| Prop In Lane | 0.90 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 322 | 0 | 286 | | | | 0 | 2271 | 1016 | 696 | 2585 | 0 |
| V/C Ratio(X) | 0.15 | 0.00 | 0.89 | | | | 0.00 | 0.18 | 0.08 | 0.39 | 0.50 | 0.00 |
| Avail Cap(c_a), veh/h | 337 | 0 | 299 | | | | 0 | 2271 | 1016 | 696 | 2585 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 1.00 | 1.00 | 0.81 | 0.81 | 0.00 |
| Uniform Delay (d), s/veh | 31.0 | 0.0 | 36.0 | | | | 0.0 | 6.5 | 6.1 | 5.4 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 26.0 | | | | 0.0 | 0.2 | 0.2 | 0.3 | 0.6 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.0 | 8.2 | | | | 0.0 | 2.1 | 0.8 | 1.4 | 0.2 | 0.0 |
| LnGrp Delay(d),s/veh | 31.3 | 0.0 | 62.0 | | | | 0.0 | 6.7 | 6.3 | 5.7 | 0.6 | 0.0 |
| LnGrp LOS | C | | E | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 303 | | | | | | 490 | | | 1571 | |
| Approach Delay, s/veh | | 57.1 | | | | | | 6.6 | | | 1.5 | |
| Approach LOS | | E | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 8.0 | 61.7 | | 20.3 | | 69.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 57.0 | | 17.0 | | 65.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 4.0 | 6.2 | | 16.2 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 20.9 | | 0.1 | | 22.3 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 9.7 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Intersection

Int Delay, s/veh 15.7

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 55 | 75 | 375 | 120 | 415 | 1015 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | Stop | - | None | - | None |
| Storage Length | 0 | 0 | - | 300 | 350 | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 60 | 82 | 408 | 130 | 451 | 1103 |













| Major/Minor | Minor1 | Major1 | Major2 |
|----------------------|--------|--------|------------|
| Conflicting Flow All | 1862 | 204 | 0 0 408 0 |
| Stage 1 | 408 | - | - - - - |
| Stage 2 | 1454 | - | - - - - |
| Critical Hdwy | 6.84 | 6.94 | - - 4.14 - |
| Critical Hdwy Stg 1 | 5.84 | - | - - - - |
| Critical Hdwy Stg 2 | 5.84 | - | - - - - |
| Follow-up Hdwy | 3.52 | 3.32 | - - 2.22 - |
| Pot Cap-1 Maneuver | 65 | 803 | - - 1147 - |
| Stage 1 | 640 | - | - - - - |
| Stage 2 | 181 | - | - - - - |
| Platoon blocked, % | | | - - - - |
| Mov Cap-1 Maneuver | ~ 39 | 803 | - - 1147 - |
| Mov Cap-2 Maneuver | ~ 39 | - | - - - - |
| Stage 1 | 640 | - | - - - - |
| Stage 2 | 110 | - | - - - - |

| Approach | WB | NB | SB |
|----------------------|-------|----|-----|
| HCM Control Delay, s | 215.9 | 0 | 2.9 |
| HCM LOS | F | | |

| Minor Lane/Major Mvmt | NBT | NBR | WBLn1 | WBLn2 | SBL | SBT |
|-----------------------|-----|-----|----------|-------|-------|-----|
| Capacity (veh/h) | - | - | 39 | 803 | 1147 | - |
| HCM Lane V/C Ratio | - | - | 1.533 | 0.102 | 0.393 | - |
| HCM Control Delay (s) | - | - | \$ 496.6 | 10 | 10.2 | - |
| HCM Lane LOS | - | - | F | B | B | - |
| HCM 95th %tile Q(veh) | - | - | 6.2 | 0.3 | 1.9 | - |

Notes




















-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

| |  |  |  |  |  |  | | |
|------------------------------|---|---|---|---|---|---|---|---|
| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
| Lane Configurations |  |  |  |  |  |  | | |
| Volume (veh/h) | 540 | 215 | 10 | 290 | 930 | 90 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 587 | 234 | 11 | 315 | 1011 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 707 | 325 | 278 | 1315 | 1315 | 1117 | | |
| Arrive On Green | 0.21 | 0.21 | 0.71 | 0.71 | 0.71 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 555 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 587 | 234 | 11 | 315 | 1011 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 555 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 14.7 | 12.4 | 1.2 | 5.4 | 31.4 | 0.0 | | |
| Cycle Q Clear(g_c), s | 14.7 | 12.4 | 32.6 | 5.4 | 31.4 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 707 | 325 | 278 | 1315 | 1315 | 1117 | | |
| V/C Ratio(X) | 0.83 | 0.72 | 0.04 | 0.24 | 0.77 | 0.00 | | |
| Avail Cap(c_a), veh/h | 880 | 405 | 278 | 1315 | 1315 | 1117 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 34.3 | 33.3 | 19.0 | 4.7 | 8.5 | 0.0 | | |
| Incr Delay (d2), s/veh | 5.6 | 4.6 | 0.3 | 0.4 | 4.4 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.6 | 5.8 | 0.2 | 2.9 | 17.3 | 0.0 | | |
| LnGrp Delay(d),s/veh | 39.8 | 38.0 | 19.3 | 5.1 | 12.9 | 0.0 | | |
| LnGrp LOS | D | D | B | A | B | | | |
| Approach Vol, veh/h | 821 | | | 326 | 1011 | | | |
| Approach Delay, s/veh | 39.3 | | | 5.6 | 12.9 | | | |
| Approach LOS | D | | | A | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | | 6 | | |
| Phs Duration (G+Y+Rc), s | | 67.5 | | 22.5 | | 67.5 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | |
| Max Green Setting (Gmax), s | | 59.0 | | 23.0 | | 59.0 | | |
| Max Q Clear Time (g_c+I1), s | | 34.6 | | 16.7 | | 33.4 | | |
| Green Ext Time (p_c), s | | 10.5 | | 1.8 | | 10.7 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 21.8 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Long Range Future Background AM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 190 | 0 | 425 | 815 | 2295 | 0 | 0 | 810 | 115 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 207 | 0 | 0 | 886 | 2495 | 0 | 0 | 880 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 3 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 244 | 256 | 218 | 918 | 2770 | 0 | 0 | 1702 | 530 |
| Arrive On Green | | | | 0.14 | 0.00 | 0.00 | 0.41 | 0.78 | 0.00 | 0.00 | 0.33 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 5253 | 1583 |
| Grp Volume(v), veh/h | | | | 207 | 0 | 0 | 886 | 2495 | 0 | 0 | 880 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1695 | 1583 |
| Q Serve(g_s), s | | | | 11.4 | 0.0 | 0.0 | 37.1 | 51.9 | 0.0 | 0.0 | 13.9 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 11.4 | 0.0 | 0.0 | 37.1 | 51.9 | 0.0 | 0.0 | 13.9 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 244 | 256 | 218 | 918 | 2770 | 0 | 0 | 1702 | 530 |
| V/C Ratio(X) | | | | 0.85 | 0.00 | 0.00 | 0.96 | 0.90 | 0.00 | 0.00 | 0.52 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 426 | 447 | 380 | 975 | 2770 | 0 | 0 | 1702 | 530 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.15 | 0.15 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 42.1 | 0.0 | 0.0 | 17.9 | 8.0 | 0.0 | 0.0 | 26.8 | 0.0 |
| Incr Delay (d2), s/veh | | | | 8.0 | 0.0 | 0.0 | 5.1 | 0.8 | 0.0 | 0.0 | 1.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 6.1 | 0.0 | 0.0 | 24.7 | 24.9 | 0.0 | 0.0 | 6.7 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 50.2 | 0.0 | 0.0 | 22.9 | 8.9 | 0.0 | 0.0 | 27.9 | 0.0 |
| LnGrp LOS | | | | D | | | C | A | | | C | |
| Approach Vol, veh/h | | | | | 207 | | | 3381 | | | 880 | |
| Approach Delay, s/veh | | | | | 50.2 | | | 12.5 | | | 27.9 | |
| Approach LOS | | | | | D | | | B | | | C | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 82.3 | | | 44.8 | 37.5 | | 17.7 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 68.0 | | | 44.0 | 20.0 | | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 53.9 | | | 39.1 | 15.9 | | 13.4 | | | | |
| Green Ext Time (p_c), s | | 13.5 | | | 1.7 | 4.0 | | 0.4 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 17.3 | | | | | | | | |
| HCM 2010 LOS | | | | B | | | | | | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|-------|-------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↑↑↑ | | ↖ | ↑↑ | |
| Volume (veh/h) | 35 | 5 | 295 | 0 | 0 | 0 | 0 | 3075 | 195 | 80 | 920 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1900 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 38 | 5 | 321 | | | | 0 | 3342 | 212 | 87 | 1000 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 3 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 252 | 33 | 253 | | | | 0 | 3346 | 208 | 137 | 2690 | 0 |
| Arrive On Green | 0.16 | 0.16 | 0.16 | | | | 0.00 | 1.00 | 1.00 | 0.02 | 0.51 | 0.00 |
| Sat Flow, veh/h | 1576 | 207 | 1583 | | | | 0 | 5063 | 304 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 43 | 0 | 321 | | | | 0 | 2294 | 1260 | 87 | 1000 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1784 | 0 | 1583 | | | | 0 | 1695 | 1809 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 2.1 | 0.0 | 16.0 | | | | 0.0 | 0.0 | 68.4 | 1.3 | 17.1 | 0.0 |
| Cycle Q Clear(g_c), s | 2.1 | 0.0 | 16.0 | | | | 0.0 | 0.0 | 68.4 | 1.3 | 17.1 | 0.0 |
| Prop In Lane | 0.88 | | 1.00 | | | | 0.00 | | 0.17 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 285 | 0 | 253 | | | | 0 | 2317 | 1237 | 137 | 2690 | 0 |
| V/C Ratio(X) | 0.15 | 0.00 | 1.27 | | | | 0.00 | 0.99 | 1.02 | 0.64 | 0.37 | 0.00 |
| Avail Cap(c_a), veh/h | 285 | 0 | 253 | | | | 0 | 2317 | 1237 | 143 | 2690 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 0.67 | 0.67 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 0.50 | 0.50 | 0.51 | 0.51 | 0.00 |
| Uniform Delay (d), s/veh | 36.2 | 0.0 | 42.0 | | | | 0.0 | 0.0 | 0.0 | 28.7 | 10.1 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 147.6 | | | | 0.0 | 11.0 | 23.1 | 4.4 | 0.2 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.0 | 17.4 | | | | 0.0 | 3.6 | 7.9 | 1.9 | 8.4 | 0.0 |
| LnGrp Delay(d),s/veh | 36.4 | 0.0 | 189.6 | | | | 0.0 | 11.0 | 23.1 | 33.1 | 10.3 | 0.0 |
| LnGrp LOS | D | | F | | | | | B | F | C | B | |
| Approach Vol, veh/h | | 364 | | | | | | 3554 | | | 1087 | |
| Approach Delay, s/veh | | 171.5 | | | | | | 15.3 | | | 12.1 | |
| Approach LOS | | F | | | | | | B | | | B | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 7.6 | 72.4 | | 20.0 | | 80.0 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 68.0 | | 16.0 | | 76.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 4.0 | 70.4 | | 18.0 | | 19.1 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 0.0 | | 56.0 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 26.0 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|-----------------------------|------|------|------|------|-------|------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 150 | 470 | 2780 | 105 | 300 | 490 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1900 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 163 | 0 | 3022 | 114 | 326 | 533 | | |
| Adj No. of Lanes | 1 | 1 | 3 | 0 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 198 | 177 | 3414 | 127 | 310 | 2861 | | |
| Arrive On Green | 0.11 | 0.00 | 0.68 | 0.68 | 0.09 | 0.81 | | |
| Sat Flow, veh/h | 1774 | 1583 | 5200 | 188 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 163 | 0 | 2024 | 1112 | 326 | 533 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1695 | 1830 | 1721 | 1770 | | |
| Q Serve(g_s), s | 9.0 | 0.0 | 47.6 | 49.8 | 9.0 | 3.4 | | |
| Cycle Q Clear(g_c), s | 9.0 | 0.0 | 47.6 | 49.8 | 9.0 | 3.4 | | |
| Prop In Lane | 1.00 | 1.00 | | 0.10 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 198 | 177 | 2300 | 1241 | 310 | 2861 | | |
| V/C Ratio(X) | 0.82 | 0.00 | 0.88 | 0.90 | 1.05 | 0.19 | | |
| Avail Cap(c_a), veh/h | 373 | 332 | 2300 | 1241 | 310 | 2861 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 43.5 | 0.0 | 12.8 | 13.2 | 45.5 | 2.2 | | |
| Incr Delay (d2), s/veh | 8.3 | 0.0 | 5.2 | 10.2 | 65.6 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 4.8 | 0.0 | 23.6 | 28.2 | 7.1 | 1.7 | | |
| LnGrp Delay(d),s/veh | 51.8 | 0.0 | 18.1 | 23.4 | 111.1 | 2.3 | | |
| LnGrp LOS | D | | B | C | F | A | | |
| Approach Vol, veh/h | 163 | | 3136 | | 859 | | | |
| Approach Delay, s/veh | 51.8 | | 20.0 | | 43.6 | | | |
| Approach LOS | D | | B | | D | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 3.0 | 71.8 | | | | 84.8 | | 15.2 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | 58.0 | | | | | 71.0 | | 21.0 |
| Max Q Clear Time (g_c+M), s | 51.8 | | | | | 5.4 | | 11.0 |
| Green Ext Time (p_c), s | 0.0 | 6.1 | | | | 58.0 | | 0.3 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 26.1 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

Chambers High Point
4: S Peoria Street & Belford Avenue/Belford Ave

Long Range Future Background AM

4/24/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Lane Configurations | ↔↔ | ↕↔ | | ↔↔ | ↕↕ | ↔ | ↔ | ↕↕ | ↔ | ↔↔ | ↕↕ | ↔ |
| Volume (veh/h) | 45 | 5 | 15 | 55 | 120 | 175 | 320 | 1425 | 285 | 735 | 425 | 745 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 |
| Adj Flow Rate, veh/h | 49 | 5 | 16 | 60 | 130 | 0 | 348 | 1549 | 310 | 799 | 462 | 0 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 113 | 107 | 96 | 101 | 201 | 90 | 381 | 2012 | 900 | 717 | 1989 | 890 |
| Arrive On Green | 0.03 | 0.06 | 0.06 | 0.03 | 0.06 | 0.00 | 0.21 | 0.57 | 0.57 | 0.21 | 0.56 | 0.00 |
| Sat Flow, veh/h | 3442 | 1770 | 1583 | 3442 | 3539 | 1583 | 1774 | 3539 | 1583 | 3442 | 3539 | 1583 |
| Grp Volume(v), veh/h | 49 | 5 | 16 | 60 | 130 | 0 | 348 | 1549 | 310 | 799 | 462 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1770 | 1583 | 1721 | 1770 | 1583 | 1774 | 1770 | 1583 | 1721 | 1770 | 1583 |
| Q Serve(g_s), s | 1.7 | 0.3 | 1.2 | 2.1 | 4.3 | 0.0 | 23.0 | 40.3 | 12.6 | 25.0 | 7.9 | 0.0 |
| Cycle Q Clear(g_c), s | 1.7 | 0.3 | 1.2 | 2.1 | 4.3 | 0.0 | 23.0 | 40.3 | 12.6 | 25.0 | 7.9 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 113 | 107 | 96 | 101 | 201 | 90 | 381 | 2012 | 900 | 717 | 1989 | 890 |
| V/C Ratio(X) | 0.43 | 0.05 | 0.17 | 0.59 | 0.65 | 0.00 | 0.91 | 0.77 | 0.34 | 1.11 | 0.23 | 0.00 |
| Avail Cap(c_a), veh/h | 459 | 398 | 356 | 143 | 472 | 211 | 532 | 2012 | 900 | 717 | 1989 | 890 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.88 | 0.88 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 56.9 | 53.1 | 53.5 | 57.5 | 55.4 | 0.0 | 46.0 | 19.9 | 13.9 | 47.5 | 13.2 | 0.0 |
| Incr Delay (d2), s/veh | 2.6 | 0.2 | 0.8 | 4.8 | 3.0 | 0.0 | 16.1 | 2.9 | 1.0 | 69.6 | 0.3 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 0.2 | 0.5 | 1.1 | 2.2 | 0.0 | 13.0 | 20.4 | 5.8 | 18.8 | 3.9 | 0.0 |
| LnGrp Delay(d),s/veh | 59.5 | 53.3 | 54.3 | 62.3 | 58.4 | 0.0 | 62.1 | 22.8 | 14.9 | 117.1 | 13.5 | 0.0 |
| LnGrp LOS | E | D | D | E | E | | E | C | B | F | B | |
| Approach Vol, veh/h | | 70 | | | 190 | | | 2207 | | | 1261 | |
| Approach Delay, s/veh | | 57.9 | | | 59.7 | | | 27.9 | | | 79.1 | |
| Approach LOS | | E | | | E | | | C | | | E | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 29.0 | 72.2 | 7.5 | 11.2 | 29.8 | 71.5 | 7.9 | 10.8 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 25.0 | 47.0 | 5.0 | 27.0 | 36.0 | 36.0 | 16.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+D), s | 27.0 | 42.3 | 4.1 | 3.2 | 25.0 | 9.9 | 3.7 | 6.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 4.1 | 0.0 | 0.9 | 0.8 | 17.6 | 0.1 | 0.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 47.4 | | | | | | | | | |
| HCM 2010 LOS | | | D | | | | | | | | | |






















| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | ↖↗ | ↗ | ↖↗ | ↑↑↑ | ↑↑↑ | ↗ | | |
| Volume (veh/h) | 200 | 75 | 180 | 3070 | 715 | 500 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 217 | 82 | 196 | 3337 | 777 | 543 | | |
| Adj No. of Lanes | 2 | 1 | 2 | 3 | 3 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 302 | 139 | 265 | 4233 | 3638 | 1133 | | |
| Arrive On Green | 0.09 | 0.09 | 0.08 | 0.83 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 3442 | 5253 | 5253 | 1583 | | |
| Grp Volume(v), veh/h | 217 | 82 | 196 | 3337 | 777 | 543 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1721 | 1695 | 1695 | 1583 | | |
| Q Serve(g_s), s | 6.1 | 5.0 | 5.6 | 32.0 | 0.0 | 0.0 | | |
| Cycle Q Clear(g_c), s | 6.1 | 5.0 | 5.6 | 32.0 | 0.0 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 302 | 139 | 265 | 4233 | 3638 | 1133 | | |
| V/C Ratio(X) | 0.72 | 0.59 | 0.74 | 0.79 | 0.21 | 0.48 | | |
| Avail Cap(c_a), veh/h | 551 | 253 | 344 | 4233 | 3638 | 1133 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 0.75 | 0.75 | 1.00 | 1.00 | 0.87 | 0.87 | | |
| Uniform Delay (d), s/veh | 44.4 | 43.9 | 45.2 | 4.1 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 2.4 | 3.0 | 6.0 | 1.6 | 0.1 | 1.3 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 8.0 | 4.4 | 2.9 | 14.8 | 0.0 | 0.4 | | |
| LnGrp Delay(d),s/veh | 46.9 | 46.9 | 51.2 | 5.6 | 0.1 | 1.3 | | |
| LnGrp LOS | D | D | D | A | A | A | | |
| Approach Vol, veh/h | 299 | | | 3533 | 1320 | | | |
| Approach Delay, s/veh | 46.9 | | | 8.2 | 0.6 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 87.2 | | 12.8 | 11.7 | 75.5 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 76.0 | | 16.0 | 10.0 | 62.0 | | |
| Max Q Clear Time (g_c+I1), s | | 34.0 | | 8.1 | 7.6 | 2.0 | | |
| Green Ext Time (p_c), s | | 41.4 | | 0.6 | 0.1 | 58.8 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 8.5 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Long Range Future Background PM

4/24/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 145 | 0 | 110 | 365 | 950 | 0 | 0 | 3160 | 45 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 158 | 0 | 0 | 397 | 1033 | 0 | 0 | 3435 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 3 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 186 | 195 | 166 | 326 | 2933 | 0 | 0 | 3282 | 1022 |
| Arrive On Green | | | | 0.10 | 0.00 | 0.00 | 0.30 | 1.00 | 0.00 | 0.00 | 0.65 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 5253 | 1583 |
| Grp Volume(v), veh/h | | | | 158 | 0 | 0 | 397 | 1033 | 0 | 0 | 3435 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1695 | 1583 |
| Q Serve(g_s), s | | | | 10.5 | 0.0 | 0.0 | 18.0 | 0.0 | 0.0 | 0.0 | 77.4 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 10.5 | 0.0 | 0.0 | 18.0 | 0.0 | 0.0 | 0.0 | 77.4 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 186 | 195 | 166 | 326 | 2933 | 0 | 0 | 3282 | 1022 |
| V/C Ratio(X) | | | | 0.85 | 0.00 | 0.00 | 1.22 | 0.35 | 0.00 | 0.00 | 1.05 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 237 | 248 | 211 | 326 | 2933 | 0 | 0 | 3282 | 1022 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.67 | 0.67 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 52.8 | 0.0 | 0.0 | 36.2 | 0.0 | 0.0 | 0.0 | 21.3 | 0.0 |
| Incr Delay (d2), s/veh | | | | 20.4 | 0.0 | 0.0 | 115.3 | 0.2 | 0.0 | 0.0 | 29.7 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 6.2 | 0.0 | 0.0 | 21.1 | 0.1 | 0.0 | 0.0 | 44.9 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 73.2 | 0.0 | 0.0 | 151.5 | 0.2 | 0.0 | 0.0 | 51.0 | 0.0 |
| LnGrp LOS | | | | E | | | F | A | | | F | |
| Approach Vol, veh/h | | | | | 158 | | | 1430 | | | 3435 | |
| Approach Delay, s/veh | | | | | 73.2 | | | 42.2 | | | 51.0 | |
| Approach LOS | | | | | E | | | D | | | D | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 103.4 | | | 22.0 | 81.4 | | 16.6 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 96.0 | | | 18.0 | 74.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 20.0 | 79.4 | | 12.5 | | | | |
| Green Ext Time (p_c), s | | 90.3 | | | 0.0 | 0.0 | | 0.1 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 49.2 | | | | | | | | |
| HCM 2010 LOS | | | | D | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps

Long Range Future Background PM

4/24/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|-------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↑↑↑ | | ↖ | ↑↑ | |
| Volume (veh/h) | 85 | 5 | 655 | 0 | 0 | 0 | 0 | 1230 | 240 | 570 | 2735 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1900 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 92 | 5 | 0 | | | | 0 | 1337 | 261 | 620 | 2973 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 3 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 117 | 6 | 110 | | | | 0 | 2626 | 512 | 638 | 3058 | 0 |
| Arrive On Green | 0.07 | 0.07 | 0.00 | | | | 0.00 | 1.00 | 1.00 | 0.43 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1687 | 92 | 1583 | | | | 0 | 4440 | 834 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 97 | 0 | 0 | | | | 0 | 1061 | 537 | 620 | 2973 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1778 | 0 | 1583 | | | | 0 | 1695 | 1716 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 6.4 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 21.8 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 6.4 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 21.8 | 0.0 | 0.0 |
| Prop In Lane | 0.95 | | 1.00 | | | | 0.00 | | 0.49 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 123 | 0 | 110 | | | | 0 | 2084 | 1054 | 638 | 3058 | 0 |
| V/C Ratio(X) | 0.79 | 0.00 | 0.00 | | | | 0.00 | 0.51 | 0.51 | 0.97 | 0.97 | 0.00 |
| Avail Cap(c_a), veh/h | 237 | 0 | 211 | | | | 0 | 2084 | 1054 | 891 | 3058 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 0.86 | 0.86 | 0.09 | 0.09 | 0.00 |
| Uniform Delay (d), s/veh | 55.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 10.5 | 0.0 | 0.0 | | | | 0.0 | 0.8 | 1.5 | 3.5 | 1.6 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.5 | 0.0 | 0.0 | | | | 0.0 | 0.2 | 0.4 | 18.9 | 0.7 | 0.0 |
| LnGrp Delay(d),s/veh | 65.5 | 0.0 | 0.0 | | | | 0.0 | 0.8 | 1.5 | 12.8 | 1.6 | 0.0 |
| LnGrp LOS | E | | | | | | | A | A | B | A | |
| Approach Vol, veh/h | | 97 | | | | | | 1598 | | | 3593 | |
| Approach Delay, s/veh | | 65.5 | | | | | | 1.0 | | | 3.6 | |
| Approach LOS | | E | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 29.9 | 77.8 | | 12.3 | | 107.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 43.0 | 49.0 | | 16.0 | | 96.0 | | | | | | |
| Max Q Clear Time (g_c+2), s | 23.8 | 2.0 | | 8.4 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 2.1 | 46.5 | | 0.2 | | 92.1 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 3.9 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|------------------------------|------|------|------|------|------|------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 120 | 165 | 910 | 270 | 480 | 2825 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1900 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 130 | 0 | 989 | 293 | 522 | 3071 | | |
| Adj No. of Lanes | 1 | 1 | 3 | 0 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 161 | 144 | 2386 | 706 | 608 | 2934 | | |
| Arrive On Green | 0.09 | 0.00 | 0.61 | 0.61 | 0.18 | 0.83 | | |
| Sat Flow, veh/h | 1774 | 1583 | 4064 | 1153 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 130 | 0 | 860 | 422 | 522 | 3071 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1695 | 1659 | 1721 | 1770 | | |
| Q Serve(g_s), s | 7.2 | 0.0 | 13.2 | 13.2 | 14.7 | 82.9 | | |
| Cycle Q Clear(g_c), s | 7.2 | 0.0 | 13.2 | 13.2 | 14.7 | 82.9 | | |
| Prop In Lane | 1.00 | 1.00 | | 0.69 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 161 | 144 | 2076 | 1016 | 608 | 2934 | | |
| V/C Ratio(X) | 0.81 | 0.00 | 0.41 | 0.42 | 0.86 | 1.05 | | |
| Avail Cap(c_a), veh/h | 284 | 253 | 2076 | 1016 | 757 | 2934 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 44.6 | 0.0 | 10.1 | 10.1 | 40.0 | 8.5 | | |
| Incr Delay (d2), s/veh | 9.1 | 0.0 | 0.6 | 1.3 | 8.2 | 30.5 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 3.9 | 0.0 | 6.3 | 6.3 | 7.6 | 51.1 | | |
| LnGrp Delay(d),s/veh | 53.7 | 0.0 | 10.7 | 11.3 | 48.1 | 39.0 | | |
| LnGrp LOS | D | | B | B | D | F | | |
| Approach Vol, veh/h | 130 | | 1282 | | | 3593 | | |
| Approach Delay, s/veh | 53.7 | | 10.9 | | | 40.3 | | |
| Approach LOS | D | | B | | | D | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 31.7 | 65.2 | | | | 86.9 | | 13.1 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | 22.0 | 50.0 | | | | 76.0 | | 16.0 |
| Max Q Clear Time (g_c+10), s | 10.7 | 15.2 | | | | 84.9 | | 9.2 |
| Green Ext Time (p_c), s | 0.9 | 34.2 | | | | 0.0 | | 0.2 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 33.1 | | | | | |
| HCM 2010 LOS | | | C | | | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|-------|-------|-------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↔↔ | ↑↔ | | ↔↔ | ↑↑ | ↔ | ↔ | ↑↑ | ↔ | ↔↔ | ↑↑ | ↔ |
| Volume (veh/h) | 665 | 105 | 265 | 300 | 15 | 710 | 15 | 555 | 90 | 295 | 1850 | 105 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 |
| Adj Flow Rate, veh/h | 723 | 114 | 288 | 326 | 16 | 0 | 16 | 603 | 98 | 321 | 2011 | 0 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 631 | 310 | 277 | 389 | 371 | 166 | 24 | 1653 | 739 | 384 | 1999 | 894 |
| Arrive On Green | 0.18 | 0.17 | 0.17 | 0.11 | 0.10 | 0.00 | 0.01 | 0.47 | 0.47 | 0.11 | 0.56 | 0.00 |
| Sat Flow, veh/h | 3442 | 1770 | 1583 | 3442 | 3539 | 1583 | 1774 | 3539 | 1583 | 3442 | 3539 | 1583 |
| Grp Volume(v), veh/h | 723 | 114 | 288 | 326 | 16 | 0 | 16 | 603 | 98 | 321 | 2011 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1770 | 1583 | 1721 | 1770 | 1583 | 1774 | 1770 | 1583 | 1721 | 1770 | 1583 |
| Q Serve(g_s), s | 22.0 | 6.8 | 21.0 | 11.1 | 0.5 | 0.0 | 1.1 | 13.1 | 4.2 | 11.0 | 67.8 | 0.0 |
| Cycle Q Clear(g_c), s | 22.0 | 6.8 | 21.0 | 11.1 | 0.5 | 0.0 | 1.1 | 13.1 | 4.2 | 11.0 | 67.8 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 631 | 310 | 277 | 389 | 371 | 166 | 24 | 1653 | 739 | 384 | 1999 | 894 |
| V/C Ratio(X) | 1.15 | 0.37 | 1.04 | 0.84 | 0.04 | 0.00 | 0.65 | 0.36 | 0.13 | 0.84 | 1.01 | 0.00 |
| Avail Cap(c_a), veh/h | 631 | 310 | 277 | 488 | 472 | 211 | 59 | 1653 | 739 | 488 | 1999 | 894 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 0.92 | 0.92 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 49.0 | 43.6 | 49.5 | 52.1 | 48.3 | 0.0 | 58.9 | 20.5 | 18.2 | 52.2 | 26.1 | 0.0 |
| Incr Delay (d2), s/veh | 83.3 | 0.7 | 64.7 | 9.4 | 0.0 | 0.0 | 25.9 | 0.6 | 0.4 | 9.8 | 21.6 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 17.7 | 3.4 | 14.1 | 5.8 | 0.2 | 0.0 | 0.7 | 6.5 | 1.9 | 5.7 | 38.8 | 0.0 |
| LnGrp Delay(d),s/veh | 132.3 | 44.4 | 114.2 | 61.5 | 48.4 | 0.0 | 84.7 | 21.2 | 18.5 | 62.0 | 47.7 | 0.0 |
| LnGrp LOS | F | D | F | E | D | | F | C | B | E | F | |
| Approach Vol, veh/h | | 1125 | | | 342 | | | 717 | | | 2332 | |
| Approach Delay, s/veh | | 118.8 | | | 60.9 | | | 22.2 | | | 49.7 | |
| Approach LOS | | F | | | E | | | C | | | D | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 7.4 | 60.0 | 17.6 | 25.0 | 5.7 | 71.8 | 26.0 | 16.6 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 49.0 | 17.0 | 21.0 | 4.0 | 62.0 | 22.0 | 16.0 | | | | | |
| Max Q Clear Time (g_c+M), s | 15.1 | 13.1 | 23.0 | 3.1 | 69.8 | 24.0 | 2.5 | | | | | |
| Green Ext Time (p_c), s | 0.4 | 26.3 | 0.4 | 0.0 | 0.0 | 0.0 | 0.0 | 2.1 | | | | |

Intersection Summary

| | |
|---------------------|------|
| HCM 2010 Ctrl Delay | 63.4 |
| HCM 2010 LOS | E |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | ↖↗ | ↗ | ↖↗ | ↑↑↑ | ↑↑↑ | ↗ | | |
| Volume (veh/h) | 500 | 175 | 105 | 970 | 3130 | 260 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 543 | 190 | 114 | 1054 | 3402 | 283 | | |
| Adj No. of Lanes | 2 | 1 | 2 | 3 | 3 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 574 | 264 | 143 | 3899 | 3517 | 1095 | | |
| Arrive On Green | 0.17 | 0.17 | 0.04 | 0.77 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 3442 | 5253 | 5253 | 1583 | | |
| Grp Volume(v), veh/h | 543 | 190 | 114 | 1054 | 3402 | 283 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1721 | 1695 | 1695 | 1583 | | |
| Q Serve(g_s), s | 18.7 | 13.6 | 3.9 | 7.3 | 0.0 | 0.0 | | |
| Cycle Q Clear(g_c), s | 18.7 | 13.6 | 3.9 | 7.3 | 0.0 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 574 | 264 | 143 | 3899 | 3517 | 1095 | | |
| V/C Ratio(X) | 0.95 | 0.72 | 0.79 | 0.27 | 0.97 | 0.26 | | |
| Avail Cap(c_a), veh/h | 574 | 264 | 143 | 3899 | 3517 | 1095 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 0.68 | 0.68 | 1.00 | 1.00 | 0.32 | 0.32 | | |
| Uniform Delay (d), s/veh | 49.5 | 47.3 | 57.0 | 4.1 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 19.3 | 6.4 | 25.8 | 0.2 | 3.8 | 0.2 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 10.4 | 12.0 | 2.4 | 3.5 | 1.2 | 0.1 | | |
| LnGrp Delay(d),s/veh | 68.8 | 53.8 | 82.8 | 4.3 | 3.8 | 0.2 | | |
| LnGrp LOS | E | D | F | A | A | A | | |
| Approach Vol, veh/h | 733 | | | 1168 | 3685 | | | |
| Approach Delay, s/veh | 64.9 | | | 12.0 | 3.5 | | | |
| Approach LOS | E | | | B | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 96.0 | | 24.0 | 9.0 | 87.0 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 92.0 | | 20.0 | 5.0 | 83.0 | | |
| Max Q Clear Time (g_c+I1), s | | 9.3 | | 20.7 | 5.9 | 2.0 | | |
| Green Ext Time (p_c), s | | 80.4 | | 0.0 | 0.0 | 78.9 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 13.3 | | | | | |
| HCM 2010 LOS | | | B | | | | | |

APPENDIX E TOTAL TRAFFIC LOS WORKSHEETS




















Total Traffic LOS Summary Table

| Intersection | Traffic Control | 2016 | | 2035 | |
|--------------------------|-----------------|------|----|------|----|
| | | AM | PM | AM | PM |
| Chambers/E-470 WB Ramps | Signal | A | A | C | E |
| Chambers/E-470 EB Ramps | Signal | A | A | C | A |
| Peoria/Belford | Signal | A | C | D | E |
| Chambers/Belford | Signal | A | A | A | D |
| Chambers/Aventerra | Signal | B | B | C | D |
| Belford/PA-C Access | Two-Way STOP | | | | |
| | EB LT | A | A | | |
| | SB LT | B | B | | |
| | SB RT | A | A | | |
| | Signal | | | C | C |
| Belford/PA-A/PA-B Access | All-Way STOP | A | A | | |
| | Two-Way STOP | | | | |
| | EB LT | | | A | A |
| | WB RT | | | A | A |
| | NB LT | | | B | C |
| | NB TR | | | B | B |
| | SB LT | | | C | C |
| | SB TR | | | B | B |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Short Range Future Total AM

10/1/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 150 | 0 | 190 | 368 | 1069 | 0 | 0 | 306 | 55 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 163 | 0 | 0 | 400 | 1162 | 0 | 0 | 333 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 201 | 212 | 180 | 910 | 2823 | 0 | 0 | 2258 | 1010 |
| Arrive On Green | | | | 0.11 | 0.00 | 0.00 | 0.23 | 1.00 | 0.00 | 0.00 | 0.64 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 163 | 0 | 0 | 400 | 1162 | 0 | 0 | 333 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 8.1 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 8.1 | 0.0 | 0.0 | 7.2 | 0.0 | 0.0 | 0.0 | 3.4 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 201 | 212 | 180 | 910 | 2823 | 0 | 0 | 2258 | 1010 |
| V/C Ratio(X) | | | | 0.81 | 0.00 | 0.00 | 0.44 | 0.41 | 0.00 | 0.00 | 0.15 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 473 | 497 | 422 | 1317 | 2823 | 0 | 0 | 2258 | 1010 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.80 | 0.80 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 38.9 | 0.0 | 0.0 | 2.9 | 0.0 | 0.0 | 0.0 | 6.5 | 0.0 |
| Incr Delay (d2), s/veh | | | | 7.5 | 0.0 | 0.0 | 0.3 | 0.4 | 0.0 | 0.0 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 4.4 | 0.0 | 0.0 | 3.4 | 0.1 | 0.0 | 0.0 | 1.7 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 46.5 | 0.0 | 0.0 | 3.2 | 0.4 | 0.0 | 0.0 | 6.7 | 0.0 |
| LnGrp LOS | | | | D | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 163 | | | 1562 | | | 333 | |
| Approach Delay, s/veh | | | | | 46.5 | | | 1.1 | | | 6.7 | |
| Approach LOS | | | | | D | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 75.8 | | | 14.4 | 61.4 | | 14.2 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 58.0 | | | 31.0 | 23.0 | | 24.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 9.2 | 5.4 | | 10.1 | | | | |
| Green Ext Time (p_c), s | | 14.2 | | | 1.1 | 9.2 | | 0.3 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 5.6 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕ | ↗ | ↖ | ↕ | |
| Volume (veh/h) | 20 | 5 | 136 | 0 | 0 | 0 | 0 | 1417 | 119 | 40 | 416 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 22 | 5 | 148 | | | | 0 | 1540 | 129 | 43 | 452 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 168 | 38 | 182 | | | | 0 | 2557 | 1144 | 346 | 2818 | 0 |
| Arrive On Green | 0.11 | 0.11 | 0.11 | | | | 0.00 | 1.00 | 1.00 | 0.03 | 0.80 | 0.00 |
| Sat Flow, veh/h | 1458 | 331 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 27 | 0 | 148 | | | | 0 | 1540 | 129 | 43 | 452 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1790 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 1.2 | 0.0 | 8.2 | | | | 0.0 | 0.0 | 0.0 | 0.5 | 2.7 | 0.0 |
| Cycle Q Clear(g_c), s | 1.2 | 0.0 | 8.2 | | | | 0.0 | 0.0 | 0.0 | 0.5 | 2.7 | 0.0 |
| Prop In Lane | 0.81 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 206 | 0 | 182 | | | | 0 | 2557 | 1144 | 346 | 2818 | 0 |
| V/C Ratio(X) | 0.13 | 0.00 | 0.81 | | | | 0.00 | 0.60 | 0.11 | 0.12 | 0.16 | 0.00 |
| Avail Cap(c_a), veh/h | 318 | 0 | 281 | | | | 0 | 2557 | 1144 | 373 | 2818 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 0.80 | 0.80 | 0.96 | 0.96 | 0.00 |
| Uniform Delay (d), s/veh | 35.8 | 0.0 | 38.9 | | | | 0.0 | 0.0 | 0.0 | 2.4 | 2.1 | 0.0 |
| Incr Delay (d2), s/veh | 0.3 | 0.0 | 9.9 | | | | 0.0 | 0.9 | 0.2 | 0.2 | 0.1 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.0 | 4.1 | | | | 0.0 | 0.3 | 0.1 | 0.2 | 1.3 | 0.0 |
| LnGrp Delay(d),s/veh | 36.1 | 0.0 | 48.8 | | | | 0.0 | 0.9 | 0.2 | 2.5 | 2.3 | 0.0 |
| LnGrp LOS | D | | D | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 175 | | | | | | 1669 | | | 495 | |
| Approach Delay, s/veh | | 46.8 | | | | | | 0.8 | | | 2.3 | |
| Approach LOS | | D | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 6.6 | 69.0 | | 14.3 | | 75.7 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 58.0 | | 16.0 | | 66.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 12.5 | 2.0 | | 10.2 | | 4.7 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 28.6 | | 0.3 | | 29.7 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 4.6 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Chambers High Point
3: S Chambers Road & Aventerra Parkway

Short Range Future Total AM
10/1/2015



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|-----------------------------|------|------|------|------|------|------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 130 | 445 | 1127 | 90 | 69 | 308 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 141 | 0 | 1225 | 98 | 75 | 335 | | |
| Adj No. of Lanes | 1 | 1 | 2 | 1 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 178 | 159 | 2578 | 1153 | 130 | 2869 | | |
| Arrive On Green | 0.10 | 0.00 | 0.73 | 0.73 | 0.08 | 1.00 | | |
| Sat Flow, veh/h | 1774 | 1583 | 3632 | 1583 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 141 | 0 | 1225 | 98 | 75 | 335 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1770 | 1583 | 1721 | 1770 | | |
| Q Serve(g_s), s | 7.0 | 0.0 | 12.9 | 1.6 | 1.9 | 0.0 | | |
| Cycle Q Clear(g_c), s | 7.0 | 0.0 | 12.9 | 1.6 | 1.9 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 178 | 159 | 2578 | 1153 | 130 | 2869 | | |
| V/C Ratio(X) | 0.79 | 0.00 | 0.48 | 0.08 | 0.58 | 0.12 | | |
| Avail Cap(c_a), veh/h | 591 | 528 | 2578 | 1153 | 459 | 2869 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.99 | 0.99 | | |
| Uniform Delay (d), s/veh | 39.5 | 0.0 | 5.1 | 3.5 | 40.9 | 0.0 | | |
| Incr Delay (d2), s/veh | 7.6 | 0.0 | 0.6 | 0.1 | 4.0 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 3.8 | 0.0 | 6.4 | 0.8 | 1.0 | 0.0 | | |
| LnGrp Delay(d),s/veh | 47.1 | 0.0 | 5.7 | 3.7 | 44.9 | 0.1 | | |
| LnGrp LOS | D | | A | A | D | A | | |
| Approach Vol, veh/h | 141 | | 1323 | | | 410 | | |
| Approach Delay, s/veh | 47.1 | | 5.6 | | | 8.3 | | |
| Approach LOS | D | | A | | | A | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 7.4 | 69.6 | | | | 76.9 | | 13.1 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax) | 12.0 | 36.0 | | | | 52.0 | | 30.0 |
| Max Q Clear Time (g_c+1) | 13.9 | 14.9 | | | | 2.0 | | 9.0 |
| Green Ext Time (p_c), s | 0.1 | 11.1 | | | | 15.7 | | 0.3 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 9.3 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Chambers High Point
4: S Peoria Street & Belford Avenue

Short Range Future Total AM
10/1/2015



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 40 | 10 | 260 | 700 | 215 | 600 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 43 | 11 | 283 | 761 | 234 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 113 | 52 | 1030 | 1636 | 1451 | 1233 | | |
| Arrive On Green | 0.03 | 0.03 | 0.05 | 0.88 | 0.78 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 1774 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 43 | 11 | 283 | 761 | 234 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1774 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 1.1 | 0.6 | 2.5 | 7.6 | 2.9 | 0.0 | | |
| Cycle Q Clear(g_c), s | 1.1 | 0.6 | 2.5 | 7.6 | 2.9 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 113 | 52 | 1030 | 1636 | 1451 | 1233 | | |
| V/C Ratio(X) | 0.38 | 0.21 | 0.27 | 0.47 | 0.16 | 0.00 | | |
| Avail Cap(c_a), veh/h | 612 | 281 | 1169 | 1636 | 1451 | 1233 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 42.6 | 42.4 | 1.3 | 1.1 | 2.5 | 0.0 | | |
| Incr Delay (d2), s/veh | 2.1 | 2.0 | 0.1 | 1.0 | 0.2 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 0.6 | 0.6 | 1.1 | 4.0 | 1.5 | 0.0 | | |
| LnGrp Delay(d),s/veh | 44.7 | 44.4 | 1.4 | 2.1 | 2.8 | 0.0 | | |
| LnGrp LOS | D | D | A | A | A | | | |
| Approach Vol, veh/h | 54 | | | 1044 | 234 | | | |
| Approach Delay, s/veh | 44.6 | | | 1.9 | 2.8 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 83.0 | | 7.0 | 8.9 | 74.1 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 66.0 | | 16.0 | 12.0 | 50.0 | | |
| Max Q Clear Time (g_c+I1), s | | 9.6 | | 3.1 | 4.5 | 4.9 | | |
| Green Ext Time (p_c), s | | 7.6 | | 0.1 | 0.5 | 7.5 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 3.8 | | | | | |
| HCM 2010 LOS | | | A | | | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 146 | 97 | 182 | 1390 | 280 | 272 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 159 | 105 | 198 | 1511 | 304 | 296 | | |
| Adj No. of Lanes | 1 | 1 | 2 | 2 | 2 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 206 | 184 | 278 | 2814 | 2371 | 1061 | | |
| Arrive On Green | 0.12 | 0.12 | 0.16 | 1.00 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 1774 | 1583 | 3442 | 3632 | 3632 | 1583 | | |
| Grp Volume(v), veh/h | 159 | 105 | 198 | 1511 | 304 | 296 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1721 | 1770 | 1770 | 1583 | | |
| Q Serve(g_s), s | 7.8 | 5.7 | 4.9 | 0.0 | 0.0 | 0.0 | | |
| Cycle Q Clear(g_c), s | 7.8 | 5.7 | 4.9 | 0.0 | 0.0 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 206 | 184 | 278 | 2814 | 2371 | 1061 | | |
| V/C Ratio(X) | 0.77 | 0.57 | 0.71 | 0.54 | 0.13 | 0.28 | | |
| Avail Cap(c_a), veh/h | 434 | 387 | 612 | 2814 | 2371 | 1061 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 0.70 | 0.70 | 0.98 | 0.98 | | |
| Uniform Delay (d), s/veh | 38.6 | 37.7 | 36.7 | 0.0 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 6.1 | 2.8 | 2.4 | 0.5 | 0.1 | 0.6 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 4.2 | 5.1 | 2.4 | 0.2 | 0.0 | 7.6 | | |
| LnGrp Delay(d),s/veh | 44.7 | 40.5 | 39.1 | 0.5 | 0.1 | 0.6 | | |
| LnGrp LOS | D | D | D | A | A | A | | |
| Approach Vol, veh/h | 264 | | | 1709 | 600 | | | |
| Approach Delay, s/veh | 43.0 | | | 5.0 | 0.4 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 75.6 | | 14.4 | 11.3 | 64.3 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 60.0 | | 22.0 | 16.0 | 40.0 | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | 9.8 | 6.9 | 2.0 | | |
| Green Ext Time (p_c), s | | 26.6 | | 0.6 | 0.4 | 21.7 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 7.8 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Intersection

Int Delay, s/veh 2.7

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 10 | 86 | 169 | 285 | 157 | 1 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | 200 | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 93 | 184 | 310 | 171 | 1 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 184 | 0 | 252 |
| Stage 1 | - | - | 184 |
| Stage 2 | - | - | 68 |
| Critical Hdwy | 4.14 | - | 6.84 |
| Critical Hdwy Stg 1 | - | - | 5.84 |
| Critical Hdwy Stg 2 | - | - | 5.84 |
| Follow-up Hdwy | 2.22 | - | 3.52 |
| Pot Cap-1 Maneuver | 1388 | - | 715 |
| Stage 1 | - | - | 829 |
| Stage 2 | - | - | 947 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1388 | - | 709 |
| Mov Cap-2 Maneuver | - | - | 709 |
| Stage 1 | - | - | 829 |
| Stage 2 | - | - | 939 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.8 | 0 | 11.7 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h) | 1388 | - | - | - | 709 | 947 |
| HCM Lane V/C Ratio | 0.008 | - | - | - | 0.241 | 0.001 |
| HCM Control Delay (s) | 7.6 | - | - | - | 11.7 | 8.8 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 0.9 | 0 |




















| Intersection | | | | | | | | | |
|---------------------------|------|------|------|------|------|------|------|------|------|
| Intersection Delay, s/veh | 7.6 | | | | | | | | |
| Intersection LOS | A | | | | | | | | |
| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
| Vol, veh/h | 0 | 22 | 148 | 0 | 11 | 83 | 0 | 13 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 24 | 161 | 0 | 12 | 90 | 0 | 14 | 1 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |

| Approach | WB | NB | SB |
|----------------------------|-----|-----|-----|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 2 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 2 | 0 |
| HCM Control Delay | 7.8 | 7.3 | 7.7 |
| HCM LOS | A | A | A |

| Lane | NBLn1 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, % | 0% | 100% | 0% | 93% |
| Vol Thru, % | 12% | 0% | 0% | 7% |
| Vol Right, % | 88% | 0% | 100% | 0% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 94 | 22 | 148 | 14 |
| LT Vol | 0 | 22 | 0 | 13 |
| Through Vol | 11 | 0 | 0 | 1 |
| RT Vol | 83 | 0 | 148 | 0 |
| Lane Flow Rate | 102 | 24 | 161 | 15 |
| Geometry Grp | 2 | 7 | 7 | 2 |
| Degree of Util (X) | 0.106 | 0.035 | 0.18 | 0.02 |
| Departure Headway (Hd) | 3.729 | 5.24 | 4.038 | 4.625 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 942 | 682 | 885 | 779 |
| Service Time | 1.828 | 2.981 | 1.779 | 2.625 |
| HCM Lane V/C Ratio | 0.108 | 0.035 | 0.182 | 0.019 |
| HCM Control Delay | 7.3 | 8.2 | 7.7 | 7.7 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.4 | 0.1 | 0.7 | 0.1 |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Short Range Future Total PM
10/1/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 105 | 0 | 50 | 176 | 431 | 0 | 0 | 1459 | 25 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 114 | 0 | 0 | 191 | 468 | 0 | 0 | 1586 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 2 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 146 | 154 | 131 | 336 | 2933 | 0 | 0 | 2596 | 1162 |
| Arrive On Green | | | | 0.08 | 0.00 | 0.00 | 0.10 | 1.00 | 0.00 | 0.00 | 0.73 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 3632 | 1583 |
| Grp Volume(v), veh/h | | | | 114 | 0 | 0 | 191 | 468 | 0 | 0 | 1586 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1770 | 1583 |
| Q Serve(g_s), s | | | | 5.7 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 19.5 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 5.7 | 0.0 | 0.0 | 2.3 | 0.0 | 0.0 | 0.0 | 19.5 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 146 | 154 | 131 | 336 | 2933 | 0 | 0 | 2596 | 1162 |
| V/C Ratio(X) | | | | 0.78 | 0.00 | 0.00 | 0.57 | 0.16 | 0.00 | 0.00 | 0.61 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 434 | 455 | 387 | 522 | 2933 | 0 | 0 | 2596 | 1162 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.95 | 0.95 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 40.5 | 0.0 | 0.0 | 7.4 | 0.0 | 0.0 | 0.0 | 5.8 | 0.0 |
| Incr Delay (d2), s/veh | | | | 8.6 | 0.0 | 0.0 | 1.4 | 0.1 | 0.0 | 0.0 | 1.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 3.1 | 0.0 | 0.0 | 2.5 | 0.0 | 0.0 | 0.0 | 9.6 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 49.1 | 0.0 | 0.0 | 8.8 | 0.1 | 0.0 | 0.0 | 6.9 | 0.0 |
| LnGrp LOS | | | | D | | | A | A | | | A | |
| Approach Vol, veh/h | | | | | 114 | | | 659 | | | 1586 | |
| Approach Delay, s/veh | | | | | 49.1 | | | 2.6 | | | 6.9 | |
| Approach LOS | | | | | D | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 78.6 | | | 8.6 | 70.0 | | 11.4 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 60.0 | | | 14.0 | 42.0 | | 22.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 4.3 | 21.5 | | 7.7 | | | | |
| Green Ext Time (p_c), s | | 25.2 | | | 0.3 | 14.1 | | 0.2 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 7.7 | | | | | | | | |
| HCM 2010 LOS | | | | A | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps

Short Range Future Total PM

10/1/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↕↕ | ↗ | ↖ | ↕↕ | |
| Volume (veh/h) | 40 | 5 | 295 | 0 | 0 | 0 | 0 | 567 | 172 | 250 | 1314 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1863 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 43 | 5 | 321 | | | | 0 | 616 | 187 | 272 | 1428 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 2 | 1 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 365 | 42 | 362 | | | | 0 | 1923 | 860 | 615 | 2416 | 0 |
| Arrive On Green | 0.23 | 0.23 | 0.23 | | | | 0.00 | 1.00 | 1.00 | 0.19 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1597 | 186 | 1583 | | | | 0 | 3632 | 1583 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 48 | 0 | 321 | | | | 0 | 616 | 187 | 272 | 1428 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1783 | 0 | 1583 | | | | 0 | 1770 | 1583 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 1.9 | 0.0 | 17.7 | | | | 0.0 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 1.9 | 0.0 | 17.7 | | | | 0.0 | 0.0 | 0.0 | 6.1 | 0.0 | 0.0 |
| Prop In Lane | 0.90 | | 1.00 | | | | 0.00 | | 1.00 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 407 | 0 | 362 | | | | 0 | 1923 | 860 | 615 | 2416 | 0 |
| V/C Ratio(X) | 0.12 | 0.00 | 0.89 | | | | 0.00 | 0.32 | 0.22 | 0.44 | 0.59 | 0.00 |
| Avail Cap(c_a), veh/h | 555 | 0 | 493 | | | | 0 | 1923 | 860 | 762 | 2416 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 0.95 | 0.95 | 0.69 | 0.69 | 0.00 |
| Uniform Delay (d), s/veh | 27.5 | 0.0 | 33.6 | | | | 0.0 | 0.0 | 0.0 | 5.6 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.1 | 0.0 | 13.9 | | | | 0.0 | 0.4 | 0.5 | 0.3 | 0.7 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.0 | 0.0 | 9.1 | | | | 0.0 | 0.1 | 0.1 | 3.0 | 0.2 | 0.0 |
| LnGrp Delay(d),s/veh | 27.7 | 0.0 | 47.5 | | | | 0.0 | 0.4 | 0.5 | 5.9 | 0.7 | 0.0 |
| LnGrp LOS | C | | D | | | | | A | A | A | A | |
| Approach Vol, veh/h | | 369 | | | | | | 803 | | | 1700 | |
| Approach Delay, s/veh | | 44.9 | | | | | | 0.4 | | | 1.6 | |
| Approach LOS | | D | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 12.5 | 52.9 | | 24.6 | | 65.4 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 10.0 | 34.0 | | 28.0 | | 54.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 10.0 | 2.0 | | 19.7 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.5 | 21.3 | | 0.9 | | 28.5 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 6.8 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Chambers High Point
3: S Chambers Road & Aventerra Parkway

Short Range Future Total PM
10/1/2015



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|-----------------------------|------|------|------|------|------|------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 55 | 105 | 464 | 120 | 463 | 1160 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 60 | 0 | 504 | 130 | 503 | 1261 | | |
| Adj No. of Lanes | 1 | 1 | 2 | 1 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 78 | 70 | 2318 | 1037 | 577 | 3069 | | |
| Arrive On Green | 0.04 | 0.00 | 0.65 | 0.65 | 0.17 | 0.87 | | |
| Sat Flow, veh/h | 1774 | 1583 | 3632 | 1583 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 60 | 0 | 504 | 130 | 503 | 1261 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1770 | 1583 | 1721 | 1770 | | |
| Q Serve(g_s), s | 3.0 | 0.0 | 5.2 | 2.8 | 12.8 | 6.6 | | |
| Cycle Q Clear(g_c), s | 3.0 | 0.0 | 5.2 | 2.8 | 12.8 | 6.6 | | |
| Prop In Lane | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 78 | 70 | 2318 | 1037 | 577 | 3069 | | |
| V/C Ratio(X) | 0.77 | 0.00 | 0.22 | 0.13 | 0.87 | 0.41 | | |
| Avail Cap(c_a), veh/h | 434 | 387 | 2318 | 1037 | 612 | 3069 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 42.6 | 0.0 | 6.2 | 5.8 | 36.5 | 1.2 | | |
| Incr Delay (d2), s/veh | 14.4 | 0.0 | 0.2 | 0.2 | 12.6 | 0.4 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 1.8 | 0.0 | 2.6 | 1.3 | 7.1 | 3.3 | | |
| LnGrp Delay(d),s/veh | 57.0 | 0.0 | 6.5 | 6.1 | 49.1 | 1.6 | | |
| LnGrp LOS | E | | A | A | D | A | | |
| Approach Vol, veh/h | 60 | | 634 | | | 1764 | | |
| Approach Delay, s/veh | 57.0 | | 6.4 | | | 15.2 | | |
| Approach LOS | E | | A | | | B | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 19.1 | 62.9 | | | | 82.0 | | 8.0 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | 40.0 | 40.0 | | | | 60.0 | | 22.0 |
| Max Q Clear Time (g_c+M), s | 11.8 | 7.2 | | | | 8.6 | | 5.0 |
| Green Ext Time (p_c), s | 0.3 | 16.1 | | | | 19.2 | | 0.1 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 13.9 | | | | | |
| HCM 2010 LOS | | | B | | | | | |

Chambers High Point
4: S Peoria Street & Belford Avenue

Short Range Future Total PM
10/1/2015



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 540 | 215 | 10 | 290 | 930 | 90 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 587 | 234 | 11 | 315 | 1011 | 0 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 685 | 315 | 286 | 1327 | 1327 | 1128 | | |
| Arrive On Green | 0.20 | 0.20 | 0.71 | 0.71 | 0.71 | 0.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 555 | 1863 | 1863 | 1583 | | |
| Grp Volume(v), veh/h | 587 | 234 | 11 | 315 | 1011 | 0 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 555 | 1863 | 1863 | 1583 | | |
| Q Serve(g_s), s | 14.8 | 12.5 | 1.1 | 5.3 | 30.7 | 0.0 | | |
| Cycle Q Clear(g_c), s | 14.8 | 12.5 | 31.9 | 5.3 | 30.7 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 685 | 315 | 286 | 1327 | 1327 | 1128 | | |
| V/C Ratio(X) | 0.86 | 0.74 | 0.04 | 0.24 | 0.76 | 0.00 | | |
| Avail Cap(c_a), veh/h | 765 | 352 | 286 | 1327 | 1327 | 1128 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | | |
| Uniform Delay (d), s/veh | 34.8 | 33.9 | 18.2 | 4.5 | 8.2 | 0.0 | | |
| Incr Delay (d2), s/veh | 8.8 | 7.4 | 0.3 | 0.4 | 4.2 | 0.0 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.9 | 6.1 | 0.2 | 2.9 | 17.0 | 0.0 | | |
| LnGrp Delay(d),s/veh | 43.6 | 41.3 | 18.4 | 4.9 | 12.3 | 0.0 | | |
| LnGrp LOS | D | D | B | A | B | | | |
| Approach Vol, veh/h | 821 | | | 326 | 1011 | | | |
| Approach Delay, s/veh | 43.0 | | | 5.4 | 12.3 | | | |
| Approach LOS | D | | | A | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | | 6 | | |
| Phs Duration (G+Y+Rc), s | | 68.1 | | 21.9 | | 68.1 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | | 4.0 | | |
| Max Green Setting (Gmax), s | | 62.0 | | 20.0 | | 62.0 | | |
| Max Q Clear Time (g_c+I1), s | | 33.9 | | 16.8 | | 32.7 | | |
| Green Ext Time (p_c), s | | 11.1 | | 1.1 | | 11.3 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 22.9 | | | | | |
| HCM 2010 LOS | | | C | | | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 289 | 193 | 119 | 450 | 1430 | 178 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 314 | 210 | 129 | 489 | 1554 | 193 | | |
| Adj No. of Lanes | 2 | 1 | 1 | 2 | 2 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 566 | 260 | 338 | 2643 | 2331 | 1043 | | |
| Arrive On Green | 0.16 | 0.16 | 0.04 | 0.75 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 1774 | 3632 | 3632 | 1583 | | |
| Grp Volume(v), veh/h | 314 | 210 | 129 | 489 | 1554 | 193 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1774 | 1770 | 1770 | 1583 | | |
| Q Serve(g_s), s | 7.6 | 11.5 | 1.9 | 3.7 | 0.0 | 0.0 | | |
| Cycle Q Clear(g_c), s | 7.6 | 11.5 | 1.9 | 3.7 | 0.0 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 566 | 260 | 338 | 2643 | 2331 | 1043 | | |
| V/C Ratio(X) | 0.56 | 0.81 | 0.38 | 0.19 | 0.67 | 0.19 | | |
| Avail Cap(c_a), veh/h | 841 | 387 | 458 | 2643 | 2331 | 1043 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 0.74 | 0.74 | | |
| Uniform Delay (d), s/veh | 34.6 | 36.2 | 3.7 | 3.3 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 0.9 | 7.5 | 0.7 | 0.2 | 1.1 | 0.3 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 3.6 | 10.1 | 1.0 | 1.8 | 0.4 | 0.1 | | |
| LnGrp Delay(d),s/veh | 35.4 | 43.7 | 4.4 | 3.5 | 1.1 | 0.3 | | |
| LnGrp LOS | D | D | A | A | A | A | | |
| Approach Vol, veh/h | 524 | | | 618 | 1747 | | | |
| Approach Delay, s/veh | 38.8 | | | 3.7 | 1.0 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 71.2 | | 18.8 | 7.9 | 63.3 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 60.0 | | 22.0 | 10.0 | 46.0 | | |
| Max Q Clear Time (g_c+I1), s | | 5.7 | | 13.5 | 3.9 | 2.0 | | |
| Green Ext Time (p_c), s | | 26.9 | | 1.3 | 0.1 | 24.3 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 8.5 | | | | | |
| HCM 2010 LOS | | | A | | | | | |

Intersection

Int Delay, s/veh 5

| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
|--------------------------|------|------|------|------|------|------|
| Vol, veh/h | 6 | 195 | 98 | 199 | 287 | 10 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 200 | - | - | 200 | 0 | 0 |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 7 | 212 | 107 | 216 | 312 | 11 |

| Major/Minor | Major1 | Major2 | Minor2 |
|----------------------|--------|--------|--------|
| Conflicting Flow All | 107 | 0 | 53 |
| Stage 1 | - | - | 107 |
| Stage 2 | - | - | 119 |
| Critical Hdwy | 4.14 | - | 6.94 |
| Critical Hdwy Stg 1 | - | - | 5.84 |
| Critical Hdwy Stg 2 | - | - | 5.84 |
| Follow-up Hdwy | 2.22 | - | 3.32 |
| Pot Cap-1 Maneuver | 1482 | - | 1003 |
| Stage 1 | - | - | 906 |
| Stage 2 | - | - | 893 |
| Platoon blocked, % | - | - | - |
| Mov Cap-1 Maneuver | 1482 | - | 1003 |
| Mov Cap-2 Maneuver | - | - | - |
| Stage 1 | - | - | 906 |
| Stage 2 | - | - | 889 |

| Approach | EB | WB | SB |
|----------------------|-----|----|------|
| HCM Control Delay, s | 0.2 | 0 | 13.2 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBL | EBT | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-----|-----|-----|-------|-------|
| Capacity (veh/h) | 1482 | - | - | - | 738 | 1003 |
| HCM Lane V/C Ratio | 0.004 | - | - | - | 0.423 | 0.011 |
| HCM Control Delay (s) | 7.4 | - | - | - | 13.4 | 8.6 |
| HCM Lane LOS | A | - | - | - | B | A |
| HCM 95th %tile Q(veh) | 0 | - | - | - | 2.1 | 0 |

Intersection

| | |
|---------------------------|-----|
| Intersection Delay, s/veh | 8.5 |
| Intersection LOS | A |

| Movement | WBU | WBL | WBR | NBU | NBT | NBR | SBU | SBL | SBT |
|-------------------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 0 | 83 | 25 | 0 | 5 | 45 | 0 | 156 | 10 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 90 | 27 | 0 | 5 | 49 | 0 | 170 | 11 |
| Number of Lanes | 0 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 1 |

Approach

| | WB | NB | SB |
|----------------------------|-----|-----|-----|
| Opposing Approach | | SB | NB |
| Opposing Lanes | 0 | 1 | 1 |
| Conflicting Approach Left | NB | | WB |
| Conflicting Lanes Left | 1 | 0 | 2 |
| Conflicting Approach Right | SB | WB | |
| Conflicting Lanes Right | 1 | 2 | 0 |
| HCM Control Delay | 8.7 | 7.2 | 8.8 |
| HCM LOS | A | A | A |




















Lane

| | NBLn1 | WBLn1 | WBLn2 | SBLn1 |
|------------------------|-------|-------|-------|-------|
| Vol Left, % | 0% | 100% | 0% | 94% |
| Vol Thru, % | 10% | 0% | 0% | 6% |
| Vol Right, % | 90% | 0% | 100% | 0% |
| Sign Control | Stop | Stop | Stop | Stop |
| Traffic Vol by Lane | 50 | 83 | 25 | 166 |
| LT Vol | 0 | 83 | 0 | 156 |
| Through Vol | 5 | 0 | 0 | 10 |
| RT Vol | 45 | 0 | 25 | 0 |
| Lane Flow Rate | 54 | 90 | 27 | 180 |
| Geometry Grp | 2 | 7 | 7 | 2 |
| Degree of Util (X) | 0.059 | 0.14 | 0.033 | 0.225 |
| Departure Headway (Hd) | 3.909 | 5.568 | 4.362 | 4.492 |
| Convergence, Y/N | Yes | Yes | Yes | Yes |
| Cap | 918 | 646 | 823 | 801 |
| Service Time | 1.924 | 3.285 | 2.079 | 2.504 |
| HCM Lane V/C Ratio | 0.059 | 0.139 | 0.033 | 0.225 |
| HCM Control Delay | 7.2 | 9.2 | 7.2 | 8.8 |
| HCM Lane LOS | A | A | A | A |
| HCM 95th-tile Q | 0.2 | 0.5 | 0.1 | 0.9 |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Long Range Future Total AM

10/1/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 281 | 0 | 425 | 839 | 2344 | 0 | 0 | 901 | 115 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 305 | 0 | 0 | 912 | 2548 | 0 | 0 | 979 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 3 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 336 | 352 | 300 | 898 | 2634 | 0 | 0 | 1369 | 426 |
| Arrive On Green | | | | 0.19 | 0.00 | 0.00 | 0.59 | 0.99 | 0.00 | 0.00 | 0.27 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 5253 | 1583 |
| Grp Volume(v), veh/h | | | | 305 | 0 | 0 | 912 | 2548 | 0 | 0 | 979 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1695 | 1583 |
| Q Serve(g_s), s | | | | 20.2 | 0.0 | 0.0 | 53.0 | 20.9 | 0.0 | 0.0 | 20.9 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 20.2 | 0.0 | 0.0 | 53.0 | 20.9 | 0.0 | 0.0 | 20.9 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 336 | 352 | 300 | 898 | 2634 | 0 | 0 | 1369 | 426 |
| V/C Ratio(X) | | | | 0.91 | 0.00 | 0.00 | 1.02 | 0.97 | 0.00 | 0.00 | 0.72 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 429 | 450 | 383 | 898 | 2634 | 0 | 0 | 1369 | 426 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 1.33 | 1.33 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.09 | 0.09 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 47.6 | 0.0 | 0.0 | 16.9 | 0.3 | 0.0 | 0.0 | 39.7 | 0.0 |
| Incr Delay (d2), s/veh | | | | 19.8 | 0.0 | 0.0 | 13.3 | 1.6 | 0.0 | 0.0 | 3.2 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 11.8 | 0.0 | 0.0 | 32.6 | 1.1 | 0.0 | 0.0 | 10.2 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 67.4 | 0.0 | 0.0 | 30.2 | 1.9 | 0.0 | 0.0 | 42.9 | 0.0 |
| LnGrp LOS | | | | E | | | F | A | | | D | |
| Approach Vol, veh/h | | | | | 305 | | | 3460 | | | 979 | |
| Approach Delay, s/veh | | | | | 67.4 | | | 9.4 | | | 42.9 | |
| Approach LOS | | | | | E | | | A | | | D | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 93.3 | | | 57.0 | 36.3 | | 26.7 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 83.0 | | | 53.0 | 26.0 | | 29.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 22.9 | | | 55.0 | 22.9 | | 22.2 | | | | |
| Green Ext Time (p_c), s | | 53.5 | | | 0.0 | 3.1 | | 0.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 20.0 | | | | | | | | |
| HCM 2010 LOS | | | | C | | | | | | | | |



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|-------|-------|------|-----|------|------|------|------|------|------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↑↑↑ | | ↖ | ↑↑ | |
| Volume (veh/h) | 35 | 5 | 340 | 0 | 0 | 0 | 0 | 3148 | 244 | 80 | 1102 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1900 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 38 | 5 | 370 | | | | 0 | 3422 | 265 | 87 | 1198 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 3 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 250 | 33 | 251 | | | | 0 | 3426 | 259 | 116 | 2743 | 0 |
| Arrive On Green | 0.16 | 0.16 | 0.16 | | | | 0.00 | 1.00 | 1.00 | 0.06 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1576 | 207 | 1583 | | | | 0 | 4992 | 365 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 43 | 0 | 370 | | | | 0 | 2380 | 1307 | 87 | 1198 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1784 | 0 | 1583 | | | | 0 | 1695 | 1798 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 2.5 | 0.0 | 19.0 | | | | 0.0 | 0.0 | 85.2 | 1.6 | 0.0 | 0.0 |
| Cycle Q Clear(g_c), s | 2.5 | 0.0 | 19.0 | | | | 0.0 | 0.0 | 85.2 | 1.6 | 0.0 | 0.0 |
| Prop In Lane | 0.88 | | 1.00 | | | | 0.00 | | 0.20 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 282 | 0 | 251 | | | | 0 | 2408 | 1277 | 116 | 2743 | 0 |
| V/C Ratio(X) | 0.15 | 0.00 | 1.48 | | | | 0.00 | 0.99 | 1.02 | 0.75 | 0.44 | 0.00 |
| Avail Cap(c_a), veh/h | 282 | 0 | 251 | | | | 0 | 2408 | 1277 | 119 | 2743 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | | | | 0.00 | 0.46 | 0.46 | 0.42 | 0.42 | 0.00 |
| Uniform Delay (d), s/veh | 43.6 | 0.0 | 50.5 | | | | 0.0 | 0.0 | 0.0 | 34.6 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 0.2 | 0.0 | 234.5 | | | | 0.0 | 10.1 | 23.5 | 10.3 | 0.2 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 1.2 | 0.0 | 24.6 | | | | 0.0 | 3.4 | 8.3 | 3.1 | 0.1 | 0.0 |
| LnGrp Delay(d),s/veh | 43.8 | 0.0 | 285.0 | | | | 0.0 | 10.1 | 23.5 | 44.9 | 0.2 | 0.0 |
| LnGrp LOS | D | | F | | | | | B | F | D | A | |
| Approach Vol, veh/h | | 413 | | | | | | 3687 | | | 1285 | |
| Approach Delay, s/veh | | 259.9 | | | | | | 14.8 | | | 3.2 | |
| Approach LOS | | F | | | | | | B | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 7.8 | 89.2 | | 23.0 | | 97.0 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 4.0 | 85.0 | | 19.0 | | 93.0 | | | | | | |
| Max Q Clear Time (g_c+I), s | 1.6 | 87.2 | | 21.0 | | 2.0 | | | | | | |
| Green Ext Time (p_c), s | 0.0 | 0.0 | | 0.0 | | 89.8 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 30.8 | | | | | | | | | |
| HCM 2010 LOS | | | C | | | | | | | | | |

Chambers High Point
3: S Chambers Road & Aventerra Parkway

Long Range Future Total AM
10/1/2015



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|-----------------------------|------|------|------|------|-------|-------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 150 | 515 | 2894 | 105 | 324 | 551 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1900 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 163 | 0 | 3146 | 114 | 352 | 599 | | |
| Adj No. of Lanes | 1 | 1 | 3 | 0 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 194 | 173 | 3524 | 126 | 315 | 2917 | | |
| Arrive On Green | 0.11 | 0.00 | 0.70 | 0.70 | 0.09 | 0.82 | | |
| Sat Flow, veh/h | 1774 | 1583 | 5208 | 181 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 163 | 0 | 2104 | 1156 | 352 | 599 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1695 | 1831 | 1721 | 1770 | | |
| Q Serve(g_s), s | 10.8 | 0.0 | 59.1 | 61.8 | 11.0 | 4.3 | | |
| Cycle Q Clear(g_c), s | 10.8 | 0.0 | 59.1 | 61.8 | 11.0 | 4.3 | | |
| Prop In Lane | 1.00 | 1.00 | | 0.10 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 194 | 173 | 2370 | 1280 | 315 | 2917 | | |
| V/C Ratio(X) | 0.84 | 0.00 | 0.89 | 0.90 | 1.12 | 0.21 | | |
| Avail Cap(c_a), veh/h | 399 | 356 | 2370 | 1280 | 315 | 2917 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.97 | 0.97 | | |
| Uniform Delay (d), s/veh | 52.4 | 0.0 | 14.3 | 14.7 | 54.5 | 2.2 | | |
| Incr Delay (d2), s/veh | 9.4 | 0.0 | 5.4 | 10.6 | 84.7 | 0.2 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 5.8 | 0.0 | 29.0 | 34.6 | 8.9 | 2.1 | | |
| LnGrp Delay(d),s/veh | 61.9 | 0.0 | 19.7 | 25.3 | 139.2 | 2.4 | | |
| LnGrp LOS | E | | B | C | F | A | | |
| Approach Vol, veh/h | 163 | | 3260 | | 951 | | | |
| Approach Delay, s/veh | 61.9 | | 21.7 | | 53.0 | | | |
| Approach LOS | E | | C | | D | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 5.0 | 87.9 | | | | 102.9 | | 17.1 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | 70.0 | | | | | 85.0 | | 27.0 |
| Max Q Clear Time (g_c+M), s | 63.8 | | | | | 6.3 | | 12.8 |
| Green Ext Time (p_c), s | 0.0 | 6.1 | | | | 70.6 | | 0.3 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 30.0 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

Chambers High Point
4: S Peoria Street & Belford Avenue

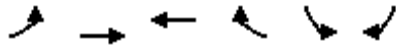
Long Range Future Total AM
10/1/2015



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------------|------|------|------|------|------|------|------|------|------|-------|------|------|
| Lane Configurations | ↖↗ | ↕ | | ↖↗ | ↕↕ | ↖ | ↖ | ↕↕ | ↖ | ↖↗ | ↕↕ | ↖ |
| Volume (veh/h) | 45 | 5 | 15 | 67 | 120 | 199 | 320 | 1425 | 308 | 780 | 425 | 745 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 |
| Adj Flow Rate, veh/h | 49 | 5 | 16 | 73 | 130 | 0 | 348 | 1549 | 335 | 848 | 462 | 0 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 114 | 98 | 88 | 119 | 201 | 90 | 382 | 1953 | 874 | 774 | 1987 | 889 |
| Arrive On Green | 0.03 | 0.06 | 0.06 | 0.03 | 0.06 | 0.00 | 0.22 | 0.55 | 0.55 | 0.22 | 0.56 | 0.00 |
| Sat Flow, veh/h | 3442 | 1770 | 1583 | 3442 | 3539 | 1583 | 1774 | 3539 | 1583 | 3442 | 3539 | 1583 |
| Grp Volume(v), veh/h | 49 | 5 | 16 | 73 | 130 | 0 | 348 | 1549 | 335 | 848 | 462 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1770 | 1583 | 1721 | 1770 | 1583 | 1774 | 1770 | 1583 | 1721 | 1770 | 1583 |
| Q Serve(g_s), s | 1.7 | 0.3 | 1.2 | 2.5 | 4.3 | 0.0 | 23.0 | 41.9 | 14.4 | 27.0 | 7.9 | 0.0 |
| Cycle Q Clear(g_c), s | 1.7 | 0.3 | 1.2 | 2.5 | 4.3 | 0.0 | 23.0 | 41.9 | 14.4 | 27.0 | 7.9 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 114 | 98 | 88 | 119 | 201 | 90 | 382 | 1953 | 874 | 774 | 1987 | 889 |
| V/C Ratio(X) | 0.43 | 0.05 | 0.18 | 0.62 | 0.65 | 0.00 | 0.91 | 0.79 | 0.38 | 1.10 | 0.23 | 0.00 |
| Avail Cap(c_a), veh/h | 459 | 383 | 343 | 172 | 472 | 211 | 562 | 1953 | 874 | 774 | 1987 | 889 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 56.9 | 53.7 | 54.1 | 57.2 | 55.4 | 0.0 | 46.0 | 21.4 | 15.3 | 46.5 | 13.3 | 0.0 |
| Incr Delay (d2), s/veh | 2.6 | 0.2 | 1.0 | 5.1 | 3.4 | 0.0 | 14.4 | 3.4 | 1.3 | 61.4 | 0.3 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 0.8 | 0.2 | 0.5 | 1.3 | 2.2 | 0.0 | 12.7 | 21.1 | 6.6 | 19.4 | 3.9 | 0.0 |
| LnGrp Delay(d),s/veh | 59.5 | 53.9 | 55.1 | 62.3 | 58.8 | 0.0 | 60.4 | 24.9 | 16.6 | 107.9 | 13.5 | 0.0 |
| LnGrp LOS | E | D | E | E | E | | E | C | B | F | B | |
| Approach Vol, veh/h | | 70 | | | 203 | | | 2232 | | | 1310 | |
| Approach Delay, s/veh | | 58.1 | | | 60.1 | | | 29.2 | | | 74.6 | |
| Approach LOS | | E | | | E | | | C | | | E | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 31.0 | 70.2 | 8.1 | 10.7 | 29.8 | 71.4 | 8.0 | 10.8 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 27.0 | 45.0 | 6.0 | 26.0 | 38.0 | 34.0 | 16.0 | 16.0 | | | | |
| Max Q Clear Time (g_c+2p_c), s | 29.0 | 43.9 | 4.5 | 3.2 | 25.0 | 9.9 | 3.7 | 6.3 | | | | |
| Green Ext Time (p_c), s | 0.0 | 1.0 | 0.0 | 0.8 | 0.8 | 16.7 | 0.1 | 0.5 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | | 46.9 | | | | | | | |
| HCM 2010 LOS | | | | | D | | | | | | | |



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|------|------|------|------|------|------|---|---|
| Lane Configurations | ↖↗ | ↗ | ↖↗ | ↑↑↑ | ↑↑↑ | ↗ | | |
| Volume (veh/h) | 322 | 160 | 339 | 3070 | 727 | 684 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 350 | 174 | 368 | 3337 | 790 | 743 | | |
| Adj No. of Lanes | 2 | 1 | 2 | 3 | 3 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 467 | 215 | 426 | 4056 | 3256 | 1014 | | |
| Arrive On Green | 0.14 | 0.14 | 0.25 | 1.00 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 3442 | 5253 | 5253 | 1583 | | |
| Grp Volume(v), veh/h | 350 | 174 | 368 | 3337 | 790 | 743 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1721 | 1695 | 1695 | 1583 | | |
| Q Serve(g_s), s | 11.7 | 12.8 | 12.3 | 0.0 | 0.0 | 0.0 | | |
| Cycle Q Clear(g_c), s | 11.7 | 12.8 | 12.3 | 0.0 | 0.0 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 467 | 215 | 426 | 4056 | 3256 | 1014 | | |
| V/C Ratio(X) | 0.75 | 0.81 | 0.86 | 0.82 | 0.24 | 0.73 | | |
| Avail Cap(c_a), veh/h | 746 | 343 | 545 | 4056 | 3256 | 1014 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 0.98 | 0.98 | 0.09 | 0.09 | 0.80 | 0.80 | | |
| Uniform Delay (d), s/veh | 49.9 | 50.3 | 44.2 | 0.0 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 2.4 | 7.3 | 1.2 | 0.2 | 0.1 | 3.8 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 5.7 | 11.2 | 5.9 | 0.1 | 0.0 | 1.1 | | |
| LnGrp Delay(d),s/veh | 52.3 | 57.7 | 45.3 | 0.2 | 0.1 | 3.8 | | |
| LnGrp LOS | D | E | D | A | A | A | | |
| Approach Vol, veh/h | 524 | | | 3705 | 1533 | | | |
| Approach Delay, s/veh | 54.1 | | | 4.7 | 1.9 | | | |
| Approach LOS | D | | | A | A | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 99.7 | | 20.3 | 18.9 | 80.8 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 86.0 | | 26.0 | 19.0 | 63.0 | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | 14.8 | 14.3 | 2.0 | | |
| Green Ext Time (p_c), s | | 82.2 | | 1.5 | 0.6 | 60.0 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 8.4 | | | | | |
| HCM 2010 LOS | | | A | | | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
|------------------------------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↖ | ↗ | ↗ | ↖ | ↖ | ↖ | | |
| Volume (veh/h) | 53 | 348 | 824 | 242 | 134 | 24 | | |
| Number | 7 | 4 | 8 | 18 | 1 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 58 | 378 | 896 | 263 | 146 | 26 | | |
| Adj No. of Lanes | 1 | 2 | 2 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 167 | 1409 | 1184 | 530 | 957 | 854 | | |
| Arrive On Green | 0.03 | 0.40 | 0.33 | 0.33 | 0.54 | 0.54 | | |
| Sat Flow, veh/h | 1774 | 3632 | 3632 | 1583 | 1774 | 1583 | | |
| Grp Volume(v), veh/h | 58 | 378 | 896 | 263 | 146 | 26 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1770 | 1583 | 1774 | 1583 | | |
| Q Serve(g_s), s | 2.7 | 9.2 | 28.9 | 17.0 | 5.3 | 1.0 | | |
| Cycle Q Clear(g_c), s | 2.7 | 9.2 | 28.9 | 17.0 | 5.3 | 1.0 | | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Lane Grp Cap(c), veh/h | 167 | 1409 | 1184 | 530 | 957 | 854 | | |
| V/C Ratio(X) | 0.35 | 0.27 | 0.76 | 0.50 | 0.15 | 0.03 | | |
| Avail Cap(c_a), veh/h | 441 | 2406 | 1631 | 730 | 957 | 854 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 0.72 | 0.72 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 29.5 | 25.9 | 38.0 | 34.0 | 14.8 | 13.8 | | |
| Incr Delay (d2), s/veh | 1.2 | 0.1 | 1.0 | 0.5 | 0.3 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 4 | 4.5 | 14.2 | 7.5 | 2.7 | 1.4 | | |
| LnGrp Delay(d),s/veh | 30.7 | 26.0 | 38.9 | 34.5 | 15.1 | 13.9 | | |
| LnGrp LOS | C | C | D | C | B | B | | |
| Approach Vol, veh/h | | 436 | 1159 | | 172 | | | |
| Approach Delay, s/veh | | 26.7 | 37.9 | | 15.0 | | | |
| Approach LOS | | C | D | | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | | | 55.0 | | 73.0 | 8.2 | 46.8 |
| Change Period (Y+Rc), s | | | | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | | | 87.0 | | 33.0 | 24.0 | 59.0 |
| Max Q Clear Time (g_c+I1), s | | | | 11.2 | | 7.3 | 4.7 | 30.9 |
| Green Ext Time (p_c), s | | | | 15.0 | | 0.5 | 0.1 | 11.9 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 32.9 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

| Intersection | | | | | | | | | | | | |
|------------------|-----|--|--|--|--|--|--|--|--|--|--|--|
| Int Delay, s/veh | 1.3 | | | | | | | | | | | |

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 22 | 318 | 3 | 19 | 703 | 126 | 11 | 11 | 62 | 11 | 1 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 200 | - | - | 200 | - | - | 0 | - | - | 0 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 1 | - | - | 1 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 24 | 346 | 3 | 21 | 764 | 137 | 12 | 12 | 67 | 12 | 1 | 2 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | | Minor2 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|--------|------|------|
| Conflicting Flow All | 901 | 0 | 0 | 349 | 0 | 0 | 819 | 1337 | 174 | 1101 | 1271 | 451 |
| Stage 1 | - | - | - | - | - | - | 395 | 395 | - | 874 | 874 | - |
| Stage 2 | - | - | - | - | - | - | 424 | 942 | - | 227 | 397 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 7.54 | 6.54 | 6.94 | 7.54 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.54 | 5.54 | - | 6.54 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.54 | 5.54 | - | 6.54 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 750 | - | - | 1207 | - | - | 267 | 152 | 839 | 166 | 167 | 556 |
| Stage 1 | - | - | - | - | - | - | 602 | 603 | - | 311 | 365 | - |
| Stage 2 | - | - | - | - | - | - | 578 | 340 | - | 755 | 602 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 750 | - | - | 1207 | - | - | 255 | 145 | 839 | 141 | 159 | 556 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 372 | 242 | - | 239 | 267 | - |
| Stage 1 | - | - | - | - | - | - | 583 | 584 | - | 301 | 359 | - |
| Stage 2 | - | - | - | - | - | - | 564 | 334 | - | 658 | 583 | - |



















| Approach | EB | WB | NB | SB |
|----------------------|-----|-----|------|------|
| HCM Control Delay, s | 0.6 | 0.2 | 12.2 | 19.4 |
| HCM LOS | | | B | C |

| Minor Lane/Major Mvmt | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|-----|-------|-------|
| Capacity (veh/h) | 372 | 612 | 750 | - | - | 1207 | - | - | 239 | 409 |
| HCM Lane V/C Ratio | 0.032 | 0.13 | 0.032 | - | - | 0.017 | - | - | 0.05 | 0.008 |
| HCM Control Delay (s) | 15 | 11.8 | 10 | - | - | 8 | - | - | 20.9 | 13.9 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | C | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.4 | 0.1 | - | - | 0.1 | - | - | 0.2 | 0 |

Chambers High Point
1: S Chambers Road & E-470 WB Ramps

Long Range Future Total PM

10/1/2015

| |  |  |  |  |  |  |  |  |  |  |  |  |
|------------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | | |  |  |  |  |  | | |  |  |
| Volume (veh/h) | 0 | 0 | 0 | 204 | 0 | 110 | 413 | 1046 | 0 | 0 | 3219 | 45 |
| Number | | | | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | | | | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | | | | 1863 | 1863 | 1863 | 1863 | 1863 | 0 | 0 | 1863 | 1863 |
| Adj Flow Rate, veh/h | | | | 222 | 0 | 0 | 449 | 1137 | 0 | 0 | 3499 | 0 |
| Adj No. of Lanes | | | | 1 | 1 | 1 | 1 | 2 | 0 | 0 | 3 | 1 |
| Peak Hour Factor | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | | | | 2 | 2 | 2 | 2 | 2 | 0 | 0 | 2 | 2 |
| Cap, veh/h | | | | 237 | 248 | 211 | 326 | 2831 | 0 | 0 | 3136 | 976 |
| Arrive On Green | | | | 0.13 | 0.00 | 0.00 | 0.30 | 1.00 | 0.00 | 0.00 | 0.62 | 0.00 |
| Sat Flow, veh/h | | | | 1774 | 1863 | 1583 | 1774 | 3632 | 0 | 0 | 5253 | 1583 |
| Grp Volume(v), veh/h | | | | 222 | 0 | 0 | 449 | 1137 | 0 | 0 | 3499 | 0 |
| Grp Sat Flow(s),veh/h/ln | | | | 1774 | 1863 | 1583 | 1774 | 1770 | 0 | 0 | 1695 | 1583 |
| Q Serve(g_s), s | | | | 14.9 | 0.0 | 0.0 | 18.0 | 0.0 | 0.0 | 0.0 | 74.0 | 0.0 |
| Cycle Q Clear(g_c), s | | | | 14.9 | 0.0 | 0.0 | 18.0 | 0.0 | 0.0 | 0.0 | 74.0 | 0.0 |
| Prop In Lane | | | | 1.00 | | 1.00 | 1.00 | | 0.00 | 0.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | | | | 237 | 248 | 211 | 326 | 2831 | 0 | 0 | 3136 | 976 |
| V/C Ratio(X) | | | | 0.94 | 0.00 | 0.00 | 1.38 | 0.40 | 0.00 | 0.00 | 1.12 | 0.00 |
| Avail Cap(c_a), veh/h | | | | 237 | 248 | 211 | 326 | 2831 | 0 | 0 | 3136 | 976 |
| HCM Platoon Ratio | | | | 1.00 | 1.00 | 1.00 | 2.00 | 2.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | | | | 1.00 | 0.00 | 0.00 | 0.50 | 0.50 | 0.00 | 0.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | | | | 51.5 | 0.0 | 0.0 | 35.6 | 0.0 | 0.0 | 0.0 | 23.0 | 0.0 |
| Incr Delay (d2), s/veh | | | | 41.8 | 0.0 | 0.0 | 179.2 | 0.2 | 0.0 | 0.0 | 57.1 | 0.0 |
| Initial Q Delay(d3),s/veh | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | | | | 10.0 | 0.0 | 0.0 | 26.9 | 0.1 | 0.0 | 0.0 | 50.9 | 0.0 |
| LnGrp Delay(d),s/veh | | | | 93.3 | 0.0 | 0.0 | 214.7 | 0.2 | 0.0 | 0.0 | 80.1 | 0.0 |
| LnGrp LOS | | | | F | | | F | A | | | F | |
| Approach Vol, veh/h | | | | | 222 | | | 1586 | | | 3499 | |
| Approach Delay, s/veh | | | | | 93.3 | | | 60.9 | | | 80.1 | |
| Approach LOS | | | | | F | | | E | | | F | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | | 2 | | | 5 | 6 | | 8 | | | | |
| Phs Duration (G+Y+Rc), s | | 100.0 | | | 22.0 | 78.0 | | 20.0 | | | | |
| Change Period (Y+Rc), s | | 4.0 | | | 4.0 | 4.0 | | 4.0 | | | | |
| Max Green Setting (Gmax), s | | 96.0 | | | 18.0 | 74.0 | | 16.0 | | | | |
| Max Q Clear Time (g_c+I1), s | | 2.0 | | | 20.0 | 76.0 | | 16.9 | | | | |
| Green Ext Time (p_c), s | | 91.2 | | | 0.0 | 0.0 | | 0.0 | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | | 75.0 | | | | | | | | |
| HCM 2010 LOS | | | | E | | | | | | | | |

Chambers High Point
2: S Chambers Road & E-470 EB Ramps



| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|------|------|------|------|-----|-------|------|------|------|------|-------|------|
| Lane Configurations | | ↕ | ↗ | | | | | ↑↑↑ | | ↖ | ↑↑ | |
| Volume (veh/h) | 85 | 0 | 685 | 0 | 0 | 0 | 0 | 1374 | 337 | 570 | 2855 | 0 |
| Number | 7 | 4 | 14 | | | | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | | | | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | | | | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | | | | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1900 | 1863 | 1863 | | | | 0 | 1863 | 1900 | 1863 | 1863 | 0 |
| Adj Flow Rate, veh/h | 92 | 0 | 0 | | | | 0 | 1493 | 366 | 620 | 3103 | 0 |
| Adj No. of Lanes | 0 | 1 | 1 | | | | 0 | 3 | 0 | 1 | 2 | 0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | | | | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | | | | 0 | 2 | 2 | 2 | 2 | 0 |
| Cap, veh/h | 117 | 0 | 105 | | | | 0 | 2408 | 587 | 638 | 3069 | 0 |
| Arrive On Green | 0.07 | 0.00 | 0.00 | | | | 0.00 | 1.00 | 1.00 | 0.49 | 1.00 | 0.00 |
| Sat Flow, veh/h | 1774 | 0 | 1583 | | | | 0 | 4250 | 995 | 1774 | 3632 | 0 |
| Grp Volume(v), veh/h | 92 | 0 | 0 | | | | 0 | 1238 | 621 | 620 | 3103 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1774 | 0 | 1583 | | | | 0 | 1695 | 1687 | 1774 | 1770 | 0 |
| Q Serve(g_s), s | 6.1 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 25.3 | 104.1 | 0.0 |
| Cycle Q Clear(g_c), s | 6.1 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 25.3 | 104.1 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | | | | 0.00 | | 0.59 | 1.00 | | 0.00 |
| Lane Grp Cap(c), veh/h | 117 | 0 | 105 | | | | 0 | 2000 | 995 | 638 | 3069 | 0 |
| V/C Ratio(X) | 0.78 | 0.00 | 0.00 | | | | 0.00 | 0.62 | 0.62 | 0.97 | 1.01 | 0.00 |
| Avail Cap(c_a), veh/h | 237 | 0 | 211 | | | | 0 | 2000 | 995 | 841 | 3069 | 0 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | | | | 1.00 | 2.00 | 2.00 | 2.00 | 2.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 0.00 | 0.00 | | | | 0.00 | 0.69 | 0.69 | 0.09 | 0.09 | 0.00 |
| Uniform Delay (d), s/veh | 55.2 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 11.3 | 0.0 | 0.0 |
| Incr Delay (d2), s/veh | 10.8 | 0.0 | 0.0 | | | | 0.0 | 1.0 | 2.0 | 4.0 | 8.0 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | | | | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 3.4 | 0.0 | 0.0 | | | | 0.0 | 0.3 | 0.6 | 18.9 | 3.4 | 0.0 |
| LnGrp Delay(d),s/veh | 65.9 | 0.0 | 0.0 | | | | 0.0 | 1.0 | 2.0 | 15.3 | 8.0 | 0.0 |
| LnGrp LOS | E | | | | | | | A | A | B | F | |
| Approach Vol, veh/h | | 92 | | | | | | 1859 | | | 3723 | |
| Approach Delay, s/veh | | 65.9 | | | | | | 1.4 | | | 9.2 | |
| Approach LOS | | E | | | | | | A | | | A | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | | 4 | | 6 | | | | | | |
| Phs Duration (G+Y+Rc), s | 33.3 | 74.8 | | 11.9 | | 108.1 | | | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | 4.0 | | 4.0 | | | | | | |
| Max Green Setting (Gmax), s | 43.0 | 49.0 | | 16.0 | | 96.0 | | | | | | |
| Max Q Clear Time (g_c+D), s | 27.3 | 2.0 | | 8.1 | | 106.1 | | | | | | |
| Green Ext Time (p_c), s | 2.0 | 46.8 | | 0.2 | | 0.0 | | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 7.6 | | | | | | | | | |
| HCM 2010 LOS | | | A | | | | | | | | | |

Chambers High Point
3: S Chambers Road & Aventerra Parkway

Long Range Future Total PM
10/1/2015



| Movement | WBL | WBR | NBT | NBR | SBL | SBT | | |
|-----------------------------|------|------|------|------|------|-------|---|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 120 | 195 | 984 | 270 | 528 | 2945 | | |
| Number | 3 | 18 | 2 | 12 | 1 | 6 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | | 1.00 | 1.00 | | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1900 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 130 | 0 | 1070 | 293 | 574 | 3201 | | |
| Adj No. of Lanes | 1 | 1 | 3 | 0 | 2 | 2 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 157 | 140 | 2496 | 683 | 630 | 2990 | | |
| Arrive On Green | 0.09 | 0.00 | 0.63 | 0.63 | 0.18 | 0.84 | | |
| Sat Flow, veh/h | 1774 | 1583 | 4141 | 1088 | 3442 | 3632 | | |
| Grp Volume(v), veh/h | 130 | 0 | 913 | 450 | 574 | 3201 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1583 | 1695 | 1671 | 1721 | 1770 | | |
| Q Serve(g_s), s | 8.6 | 0.0 | 16.4 | 16.4 | 19.6 | 101.4 | | |
| Cycle Q Clear(g_c), s | 8.6 | 0.0 | 16.4 | 16.4 | 19.6 | 101.4 | | |
| Prop In Lane | 1.00 | 1.00 | | 0.65 | 1.00 | | | |
| Lane Grp Cap(c), veh/h | 157 | 140 | 2130 | 1050 | 630 | 2990 | | |
| V/C Ratio(X) | 0.83 | 0.00 | 0.43 | 0.43 | 0.91 | 1.07 | | |
| Avail Cap(c_a), veh/h | 237 | 211 | 2130 | 1050 | 660 | 2990 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 0.00 | 1.00 | 1.00 | 0.09 | 0.09 | | |
| Uniform Delay (d), s/veh | 53.8 | 0.0 | 11.3 | 11.3 | 48.1 | 9.3 | | |
| Incr Delay (d2), s/veh | 13.7 | 0.0 | 0.6 | 1.3 | 2.0 | 32.6 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 7.8 | 0.0 | 7.8 | 7.9 | 9.5 | 60.9 | | |
| LnGrp Delay(d),s/veh | 67.4 | 0.0 | 12.0 | 12.6 | 50.0 | 41.9 | | |
| LnGrp LOS | E | | B | B | D | F | | |
| Approach Vol, veh/h | 130 | | 1363 | | | 3775 | | |
| Approach Delay, s/veh | 67.4 | | 12.2 | | | 43.2 | | |
| Approach LOS | E | | B | | | D | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | 1 | 2 | | | | 6 | | 8 |
| Phs Duration (G+Y+Rc), s | 36.0 | 79.4 | | | | 105.4 | | 14.6 |
| Change Period (Y+Rc), s | 4.0 | 4.0 | | | | 4.0 | | 4.0 |
| Max Green Setting (Gmax), s | 23.0 | 69.0 | | | | 96.0 | | 16.0 |
| Max Q Clear Time (g_c+D), s | 21.6 | 18.4 | | | | 103.4 | | 10.6 |
| Green Ext Time (p_c), s | 0.4 | 49.8 | | | | 0.0 | | 0.1 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 35.8 | | | | | |
| HCM 2010 LOS | | | D | | | | | |

Chambers High Point
4: S Peoria Street & Belford Avenue

Long Range Future Total PM
10/1/2015



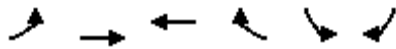
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-----------------------------|-------|-------|------|------|------|------|------|------|------|------|------|------|
| Lane Configurations | ↖↗ | ↕ | | ↖↗ | ↕↕ | ↖ | ↖ | ↕↕ | ↖ | ↖↗ | ↕↕ | ↖ |
| Volume (veh/h) | 665 | 105 | 265 | 325 | 15 | 758 | 15 | 555 | 105 | 325 | 1850 | 105 |
| Number | 7 | 4 | 14 | 3 | 8 | 18 | 5 | 2 | 12 | 1 | 6 | 16 |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ped-Bike Adj(A_pbT) | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1900 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 |
| Adj Flow Rate, veh/h | 723 | 114 | 288 | 353 | 16 | 0 | 16 | 603 | 114 | 353 | 2011 | 0 |
| Adj No. of Lanes | 2 | 2 | 0 | 2 | 2 | 1 | 1 | 2 | 1 | 2 | 2 | 1 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Cap, veh/h | 631 | 324 | 290 | 411 | 423 | 189 | 24 | 1565 | 700 | 419 | 1947 | 871 |
| Arrive On Green | 0.18 | 0.18 | 0.18 | 0.12 | 0.12 | 0.00 | 0.01 | 0.44 | 0.44 | 0.12 | 0.55 | 0.00 |
| Sat Flow, veh/h | 3442 | 1770 | 1583 | 3442 | 3539 | 1583 | 1774 | 3539 | 1583 | 3442 | 3539 | 1583 |
| Grp Volume(v), veh/h | 723 | 114 | 288 | 353 | 16 | 0 | 16 | 603 | 114 | 353 | 2011 | 0 |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1770 | 1583 | 1721 | 1770 | 1583 | 1774 | 1770 | 1583 | 1721 | 1770 | 1583 |
| Q Serve(g_s), s | 22.0 | 6.7 | 21.8 | 12.1 | 0.5 | 0.0 | 1.1 | 13.7 | 5.2 | 12.0 | 66.0 | 0.0 |
| Cycle Q Clear(g_c), s | 22.0 | 6.7 | 21.8 | 12.1 | 0.5 | 0.0 | 1.1 | 13.7 | 5.2 | 12.0 | 66.0 | 0.0 |
| Prop In Lane | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 | 1.00 | | 1.00 |
| Lane Grp Cap(c), veh/h | 631 | 324 | 290 | 411 | 423 | 189 | 24 | 1565 | 700 | 419 | 1947 | 871 |
| V/C Ratio(X) | 1.15 | 0.35 | 0.99 | 0.86 | 0.04 | 0.00 | 0.65 | 0.39 | 0.16 | 0.84 | 1.03 | 0.00 |
| Avail Cap(c_a), veh/h | 631 | 324 | 290 | 459 | 472 | 211 | 59 | 1565 | 700 | 545 | 1947 | 871 |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Upstream Filter(I) | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.00 |
| Uniform Delay (d), s/veh | 49.0 | 42.8 | 48.9 | 51.8 | 46.7 | 0.0 | 58.9 | 22.5 | 20.1 | 51.6 | 27.0 | 0.0 |
| Incr Delay (d2), s/veh | 83.3 | 0.6 | 50.6 | 13.9 | 0.0 | 0.0 | 25.9 | 0.7 | 0.5 | 9.1 | 29.5 | 0.0 |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| %ile BackOfQ(50%),veh/ln | 17.7 | 3.4 | 13.6 | 6.5 | 0.2 | 0.0 | 0.7 | 6.9 | 2.4 | 6.3 | 39.9 | 0.0 |
| LnGrp Delay(d),s/veh | 132.3 | 43.4 | 99.5 | 65.7 | 46.8 | 0.0 | 84.7 | 23.2 | 20.6 | 60.7 | 56.5 | 0.0 |
| LnGrp LOS | F | D | F | E | D | | F | C | C | E | F | |
| Approach Vol, veh/h | | 1125 | | | 369 | | | 733 | | | 2364 | |
| Approach Delay, s/veh | | 114.9 | | | 64.9 | | | 24.2 | | | 57.1 | |
| Approach LOS | | F | | | E | | | C | | | E | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Assigned Phs | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| Phs Duration (G+Y+Rc), s | 18.6 | 57.1 | 18.3 | 26.0 | 5.7 | 70.0 | 26.0 | 18.3 | | | | |
| Change Period (Y+Rc), s | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | 4.0 | | | | |
| Max Green Setting (Gmax), s | 47.0 | 16.0 | 22.0 | 4.0 | 62.0 | 22.0 | 16.0 | | | | | |
| Max Q Clear Time (g_c+M), s | 15.7 | 14.1 | 23.8 | 3.1 | 68.0 | 24.0 | 2.5 | | | | | |
| Green Ext Time (p_c), s | 0.6 | 24.8 | 0.3 | 0.0 | 0.0 | 0.0 | 2.1 | | | | | |
| Intersection Summary | | | | | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 66.6 | | | | | | | | | |
| HCM 2010 LOS | | | E | | | | | | | | | |

Chambers High Point
5: S Chambers Road & Belford Avenue

Long Range Future Total PM
10/1/2015



| Movement | EBL | EBR | NBL | NBT | SBT | SBR | | |
|------------------------------|-------|-------|------|------|------|------|---|---|
| Lane Configurations | ↖↖ | ↗ | ↖↖ | ↑↑↑ | ↑↑↑ | ↗ | | |
| Volume (veh/h) | 741 | 343 | 209 | 970 | 3130 | 408 | | |
| Number | 7 | 14 | 5 | 2 | 6 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 805 | 373 | 227 | 1054 | 3402 | 443 | | |
| Adj No. of Lanes | 2 | 1 | 2 | 3 | 3 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 688 | 317 | 291 | 3729 | 3130 | 975 | | |
| Arrive On Green | 0.20 | 0.20 | 0.03 | 0.24 | 1.00 | 1.00 | | |
| Sat Flow, veh/h | 3442 | 1583 | 3442 | 5253 | 5253 | 1583 | | |
| Grp Volume(v), veh/h | 805 | 373 | 227 | 1054 | 3402 | 443 | | |
| Grp Sat Flow(s),veh/h/ln | 1721 | 1583 | 1721 | 1695 | 1695 | 1583 | | |
| Q Serve(g_s), s | 24.0 | 24.0 | 7.9 | 20.2 | 73.9 | 0.0 | | |
| Cycle Q Clear(g_c), s | 24.0 | 24.0 | 7.9 | 20.2 | 73.9 | 0.0 | | |
| Prop In Lane | 1.00 | 1.00 | 1.00 | | | 1.00 | | |
| Lane Grp Cap(c), veh/h | 688 | 317 | 291 | 3729 | 3130 | 975 | | |
| V/C Ratio(X) | 1.17 | 1.18 | 0.78 | 0.28 | 1.09 | 0.45 | | |
| Avail Cap(c_a), veh/h | 688 | 317 | 402 | 3729 | 3130 | 975 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 0.33 | 0.33 | 2.00 | 2.00 | | |
| Upstream Filter(I) | 0.74 | 0.74 | 0.88 | 0.88 | 0.24 | 0.24 | | |
| Uniform Delay (d), s/veh | 48.0 | 48.0 | 57.2 | 19.8 | 0.0 | 0.0 | | |
| Incr Delay (d2), s/veh | 87.9 | 101.9 | 5.8 | 0.2 | 40.8 | 0.4 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 19.8 | 27.9 | 4.0 | 9.6 | 11.8 | 0.1 | | |
| LnGrp Delay(d),s/veh | 135.9 | 149.9 | 63.0 | 20.0 | 40.8 | 0.4 | | |
| LnGrp LOS | F | F | E | B | F | A | | |
| Approach Vol, veh/h | 1178 | | | 1281 | 3845 | | | |
| Approach Delay, s/veh | 140.3 | | | 27.6 | 36.1 | | | |
| Approach LOS | F | | | C | D | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | 2 | | 4 | 5 | 6 | | |
| Phs Duration (G+Y+Rc), s | | 92.0 | | 28.0 | 14.1 | 77.9 | | |
| Change Period (Y+Rc), s | | 4.0 | | 4.0 | 4.0 | 4.0 | | |
| Max Green Setting (Gmax), s | | 88.0 | | 24.0 | 14.0 | 70.0 | | |
| Max Q Clear Time (g_c+I1), s | | 22.2 | | 26.0 | 9.9 | 75.9 | | |
| Green Ext Time (p_c), s | | 64.5 | | 0.0 | 0.3 | 0.0 | | |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 53.8 | | | | | |
| HCM 2010 LOS | | | D | | | | | |



| Movement | EBL | EBT | WBT | WBR | SBL | SBR | | |
|------------------------------|------|------|------|------|------|------|------|------|
| Lane Configurations | | | | | | | | |
| Volume (veh/h) | 36 | 841 | 448 | 169 | 243 | 54 | | |
| Number | 7 | 4 | 8 | 18 | 1 | 16 | | |
| Initial Q (Qb), veh | 0 | 0 | 0 | 0 | 0 | 0 | | |
| Ped-Bike Adj(A_pbT) | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Parking Bus, Adj | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Adj Sat Flow, veh/h/ln | 1863 | 1863 | 1863 | 1863 | 1863 | 1863 | | |
| Adj Flow Rate, veh/h | 39 | 914 | 487 | 184 | 264 | 59 | | |
| Adj No. of Lanes | 1 | 2 | 2 | 1 | 1 | 1 | | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | | |
| Percent Heavy Veh, % | 2 | 2 | 2 | 2 | 2 | 2 | | |
| Cap, veh/h | 252 | 1286 | 1082 | 484 | 1011 | 902 | | |
| Arrive On Green | 0.02 | 0.36 | 0.31 | 0.31 | 0.57 | 0.57 | | |
| Sat Flow, veh/h | 1774 | 3632 | 3632 | 1583 | 1774 | 1583 | | |
| Grp Volume(v), veh/h | 39 | 914 | 487 | 184 | 264 | 59 | | |
| Grp Sat Flow(s),veh/h/ln | 1774 | 1770 | 1770 | 1583 | 1774 | 1583 | | |
| Q Serve(g_s), s | 1.8 | 26.6 | 13.3 | 11.0 | 9.0 | 2.0 | | |
| Cycle Q Clear(g_c), s | 1.8 | 26.6 | 13.3 | 11.0 | 9.0 | 2.0 | | |
| Prop In Lane | 1.00 | | | 1.00 | 1.00 | 1.00 | | |
| Lane Grp Cap(c), veh/h | 252 | 1286 | 1082 | 484 | 1011 | 902 | | |
| V/C Ratio(X) | 0.15 | 0.71 | 0.45 | 0.38 | 0.26 | 0.07 | | |
| Avail Cap(c_a), veh/h | 401 | 2124 | 1622 | 726 | 1011 | 902 | | |
| HCM Platoon Ratio | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | | |
| Upstream Filter(I) | 1.00 | 1.00 | 0.87 | 0.87 | 1.00 | 1.00 | | |
| Uniform Delay (d), s/veh | 27.2 | 32.8 | 33.5 | 32.7 | 13.0 | 11.5 | | |
| Incr Delay (d2), s/veh | 0.3 | 0.7 | 0.3 | 0.4 | 0.6 | 0.1 | | |
| Initial Q Delay(d3),s/veh | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | | |
| %ile BackOfQ(50%),veh/ln | 0.9 | 13.1 | 6.5 | 4.9 | 4.6 | 2.8 | | |
| LnGrp Delay(d),s/veh | 27.5 | 33.5 | 33.8 | 33.1 | 13.7 | 11.7 | | |
| LnGrp LOS | C | C | C | C | B | B | | |
| Approach Vol, veh/h | | 953 | 671 | | 323 | | | |
| Approach Delay, s/veh | | 33.3 | 33.6 | | 13.3 | | | |
| Approach LOS | | C | C | | B | | | |
| Timer | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Assigned Phs | | | | 4 | | 6 | 7 | 8 |
| Phs Duration (G+Y+Rc), s | | | | 47.6 | | 72.4 | 6.9 | 40.7 |
| Change Period (Y+Rc), s | | | | 4.0 | | 4.0 | 4.0 | 4.0 |
| Max Green Setting (Gmax), s | | | | 72.0 | | 40.0 | 13.0 | 55.0 |
| Max Q Clear Time (g_c+I1), s | | | | 28.6 | | 11.0 | 3.8 | 15.3 |
| Green Ext Time (p_c), s | | | | 15.0 | | 1.0 | 0.0 | 14.6 |
| Intersection Summary | | | | | | | | |
| HCM 2010 Ctrl Delay | | | 30.1 | | | | | |
| HCM 2010 LOS | | | C | | | | | |

Intersection

Int Delay, s/veh 4.1

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Vol, veh/h | 4 | 705 | 11 | 72 | 409 | 21 | 6 | 5 | 39 | 133 | 10 | 23 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Free | Free | Stop | Stop | Stop | Stop | Stop | Stop |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | 200 | - | - | 200 | - | - | 0 | - | - | 0 | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 1 | - | - | 1 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 4 | 766 | 12 | 78 | 445 | 23 | 7 | 5 | 42 | 145 | 11 | 25 |

Major/Minor

| | Major1 | | Major2 | | Minor1 | | Minor2 |
|----------------------|--------|---|--------|------|--------|---|----------------|
| Conflicting Flow All | 467 | 0 | 0 | 778 | 0 | 0 | 1165 1405 389 |
| Stage 1 | - | - | - | - | - | - | 781 781 - |
| Stage 2 | - | - | - | - | - | - | 384 624 - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 7.54 6.54 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 6.54 5.54 - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 6.54 5.54 - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 4.02 3.32 |
| Pot Cap-1 Maneuver | 1091 | - | - | 834 | - | - | 149 138 610 |
| Stage 1 | - | - | - | - | - | - | 354 403 - |
| Stage 2 | - | - | - | - | - | - | 611 476 - |
| Platoon blocked, % | | - | - | | - | - | |
| Mov Cap-1 Maneuver | 1091 | - | - | 834 | - | - | 129 125 610 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 248 246 - |
| Stage 1 | - | - | - | - | - | - | 353 402 - |
| Stage 2 | - | - | - | - | - | - | 522 431 - |

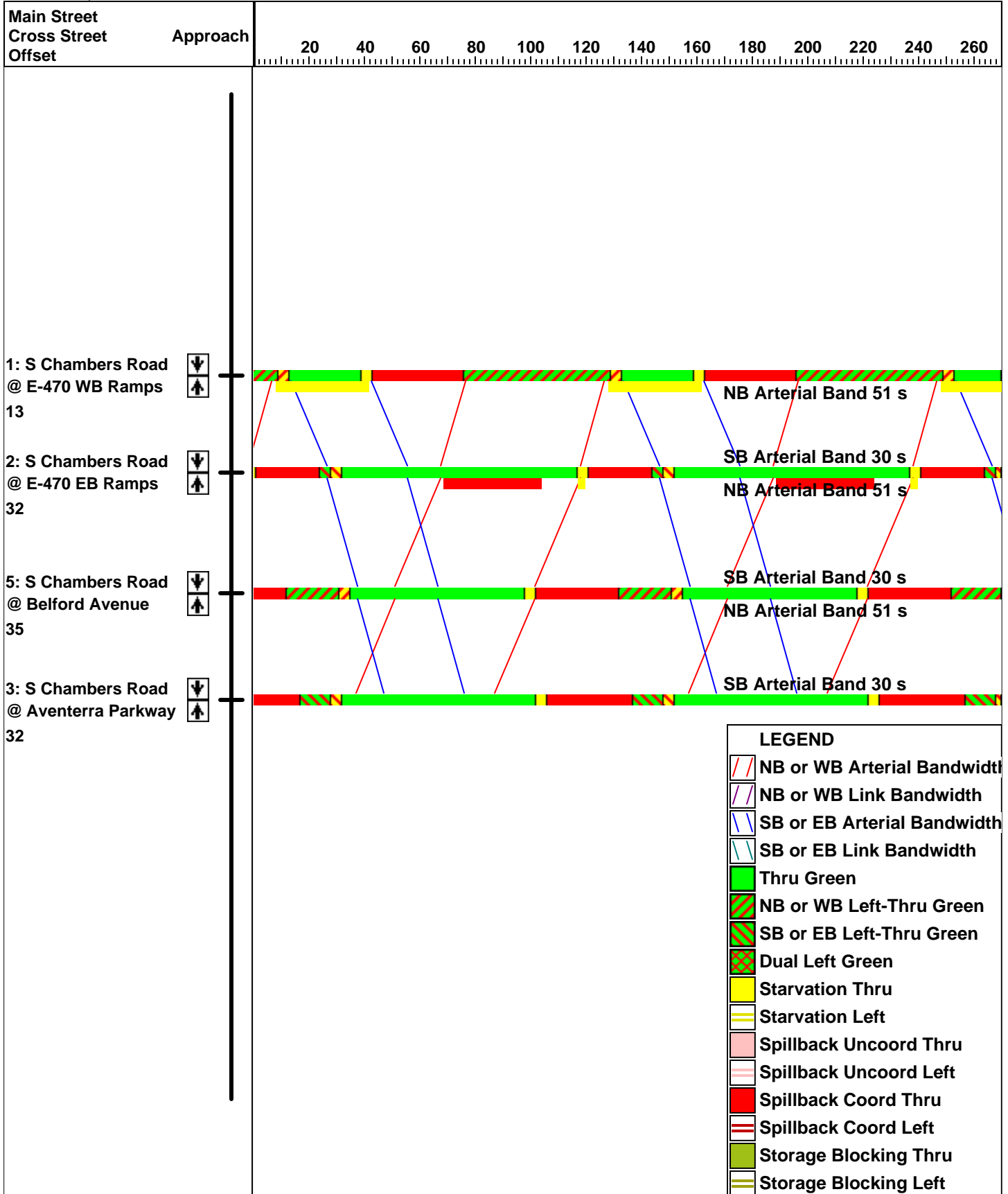
Approach

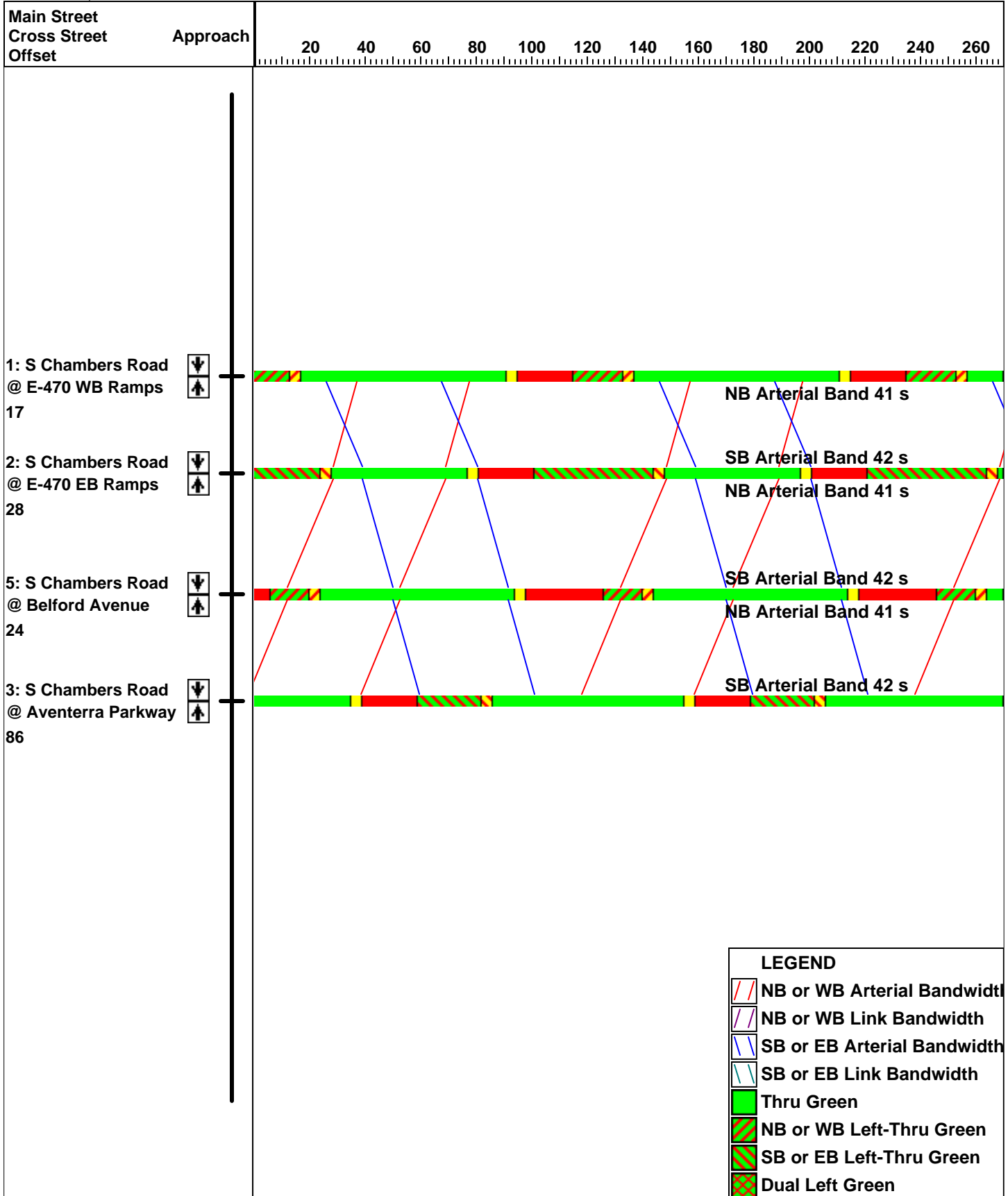
| | EB | WB | NB | SB |
|----------------------|----|-----|------|------|
| HCM Control Delay, s | 0 | 1.4 | 13.5 | 26.9 |
| HCM LOS | | | B | D |

Minor Lane/Major Mvmt

| | NBLn1 | NBLn2 | EBL | EBT | EBR | WBL | WBT | WBR | SBLn1 | SBLn2 |
|-----------------------|-------|-------|-------|-----|-----|-------|-----|-----|-------|-------|
| Capacity (veh/h) | 248 | 522 | 1091 | - | - | 834 | - | - | 284 | 444 |
| HCM Lane V/C Ratio | 0.026 | 0.092 | 0.004 | - | - | 0.094 | - | - | 0.509 | 0.081 |
| HCM Control Delay (s) | 19.9 | 12.6 | 8.3 | - | - | 9.8 | - | - | 30.1 | 13.8 |
| HCM Lane LOS | C | B | A | - | - | A | - | - | D | B |
| HCM 95th %tile Q(veh) | 0.1 | 0.3 | 0 | - | - | 0.3 | - | - | 2.7 | 0.3 |

APPENDIX F TIME – SPACE DIAGRAMS





APPENDIX G BELFORD AVENUE CONCEPT PLAN



COMPARK VILLAGE

SEGMENT - C

PARCEL 190

HAPPY CANYON CREEK

SEGMENT - B

PARCEL 470

E-470

AIRPORT 320

SEGMENT - A

6TH STREET

5TH STREET

FILBERT AVENUE

3RD STREET

2ND STREET

PEORIA STREET

GREEN ACRES TRIBUTARY

CHAMBERS ROAD



0 150 300 600 Feet
SCALE 1"=300'